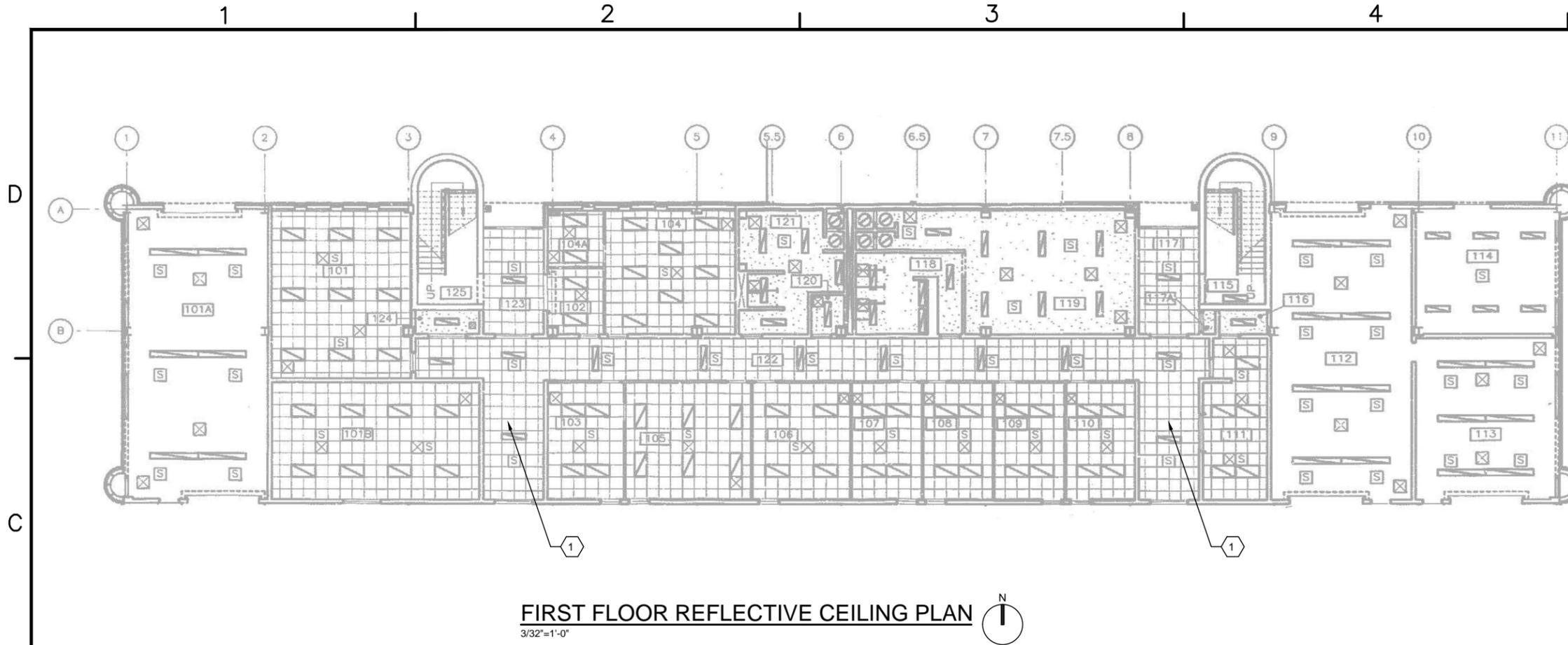
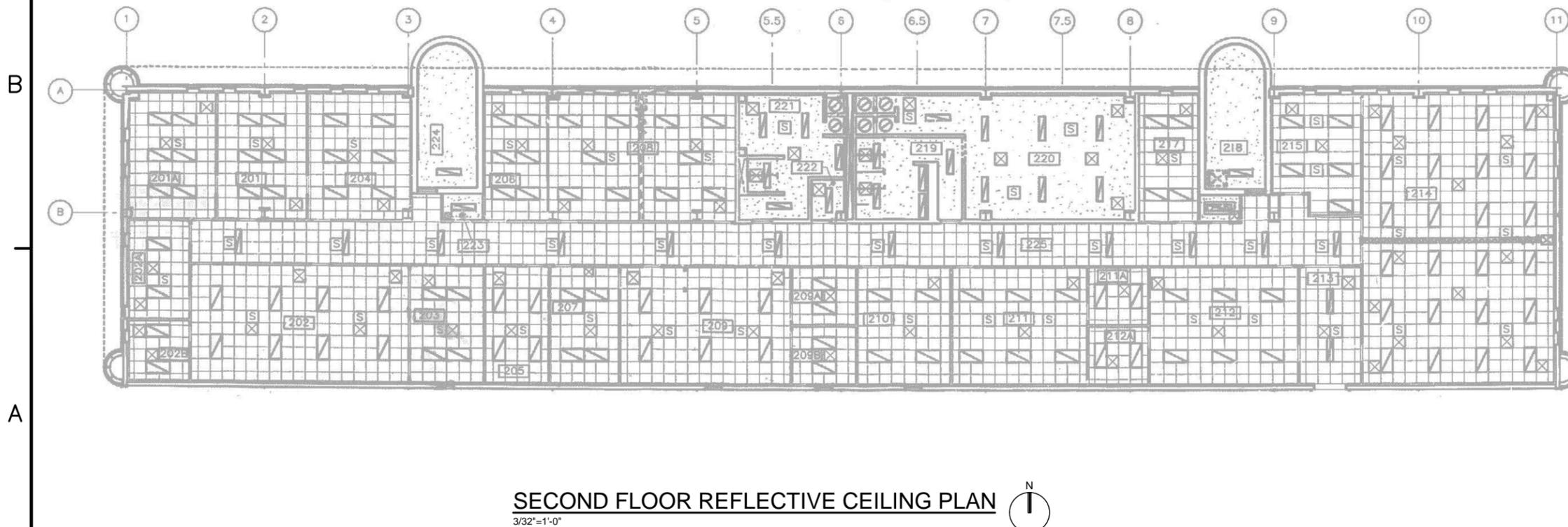


BUILDING LP-33



**FIRST FLOOR REFLECTIVE CEILING PLAN**  
3/32"=1'-0"



**SECOND FLOOR REFLECTIVE CEILING PLAN**  
3/32"=1'-0"

**GENERAL NOTES**

1. THIS PROJECT INCLUDES IMPLEMENTATION OF ECM(S) WITHIN THE FACILITY. PROVIDE EQUIPMENT AND CONTROL COMPONENTS FOR A COMPLETE AND FUNCTIONAL SYSTEM.
2. APPROXIMATE LOCATIONS OF EQUIPMENT ARE INDICATED ON CONCEPT DRAWINGS. APPLICABLE NOTES ARE IDENTIFIED BY HEXAGONAL FLAGS.
3. EXACT LOCATIONS FOR EXISTING EQUIPMENT AND SUPPORT INFRASTRUCTURE ARE NOT KNOWN. CONTRACTOR SHALL FIELD-LOCATE EXISTING EQUIPMENT AND MODIFY THE BUILDING SYSTEMS TO SUPPORT ECM IMPLEMENTATION.

**SHEET KEYNOTES**

1. PROVIDE MINIMUM TWO OCCUPANCY SENSORS TO CONTROL FIRST FLOOR CORRIDOR LIGHTING.

NO.	DESCRIPTION	DATE	APPR.



2411 Dulles Corner Park  
Suite 500  
Herndon, VA 20177

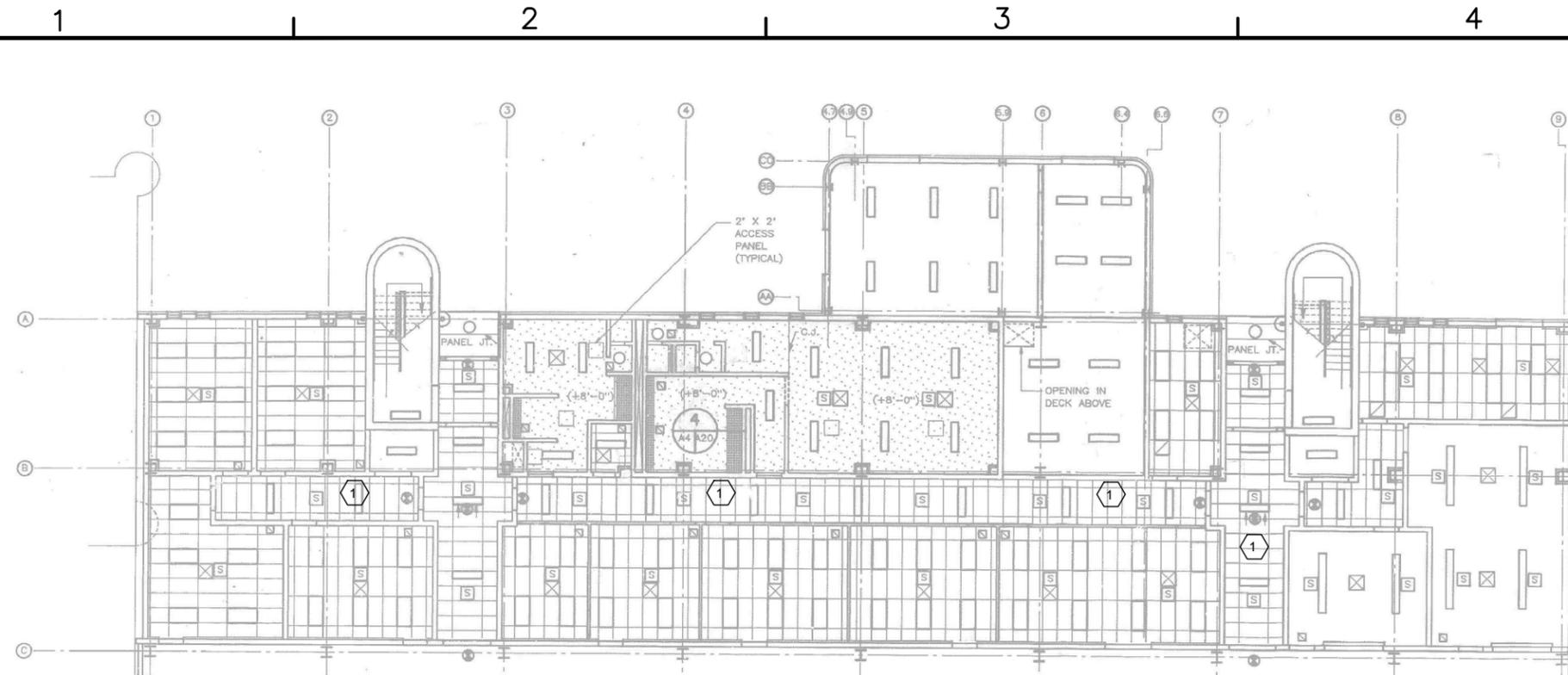
APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE 06/02/2016
DES PTJ   DRW IHK   CHK BDC
<<PM/DM>> MHP
BRANCH MANAGER
CHIEF ENG/ARCH
<<XXX>>

NAVFAC  
NAVAL FACILITIES ENGINEERING COMMAND  
NORFOLK, VA  
DFSP  
HVAC AND DDC  
FACILITY OPTIMIZATION  
BUILDING LP-33  
FIRST AND SECOND FLOOR PLANS

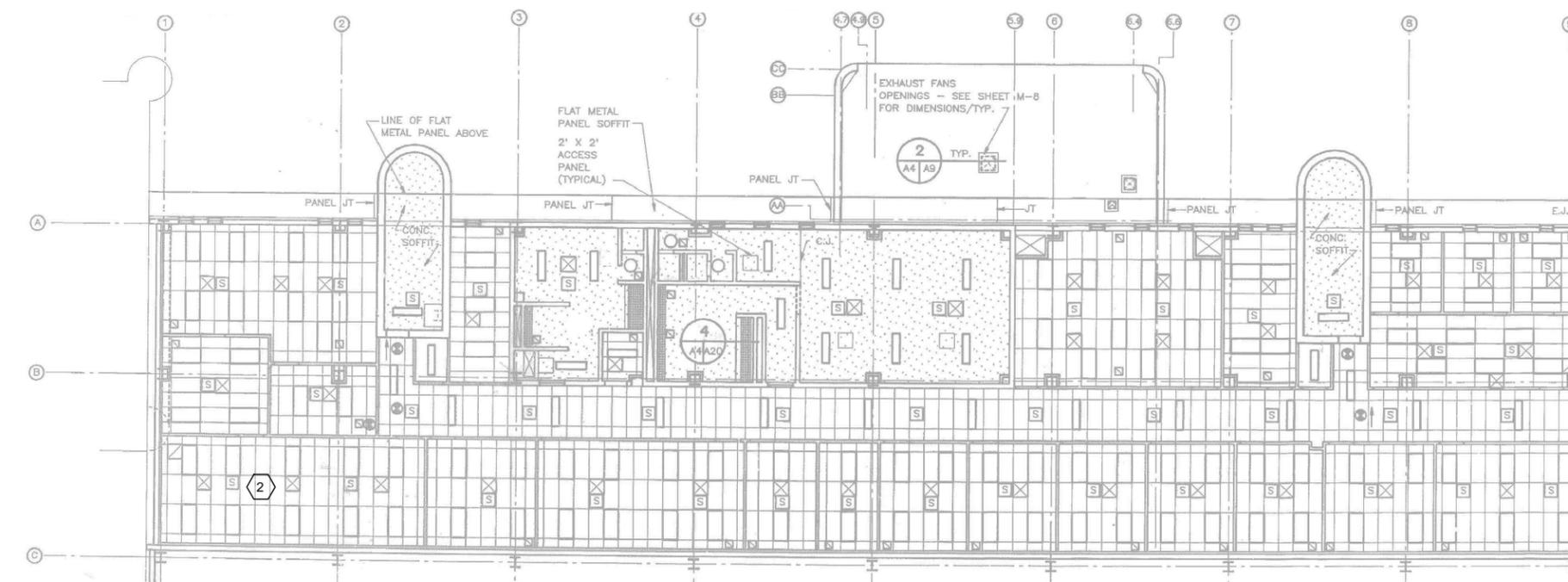
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EPROJECT NO.:	1333285
CONSTR. CONTR. NO.	N62583-11-D-0533
NAVFAC DRAWING NO.	12724407
SHEET	39 OF 119

**M-101**  
DRAWING REVISION: 10 MAY 2014

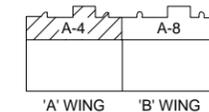
BUILDING LP-34



**FIRST FLOOR REFLECTIVE CEILING PLAN - 'A' WING**  
3/32"=1'-0"



**SECOND FLOOR REFLECTIVE CEILING PLAN - 'A' WING**  
3/32"=1'-0"



**KEY PLAN**

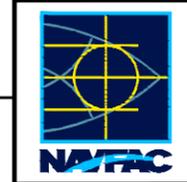
**GENERAL NOTES**

1. THIS PROJECT INCLUDES IMPLEMENTATION OF ECM(S) WITHIN THE FACILITY. PROVIDE EQUIPMENT AND CONTROL COMPONENTS FOR A COMPLETE AND FUNCTIONAL SYSTEM.
2. APPROXIMATE LOCATIONS OF EQUIPMENT ARE INDICATED ON CONCEPT DRAWINGS. APPLICABLE NOTES ARE IDENTIFIED BY HEXAGONAL FLAGS.
3. EXACT LOCATIONS FOR EXISTING EQUIPMENT AND SUPPORT INFRASTRUCTURE ARE NOT KNOWN. CONTRACTOR SHALL FIELD-LOCATE EXISTING EQUIPMENT AND MODIFY THE BUILDING SYSTEMS TO SUPPORT ECM IMPLEMENTATION.

**SHEET KEYNOTES**

1. PROVIDE MINIMUM FOUR OCCUPANCY SENSORS TO CONTROL FIRST FLOOR CORRIDOR LIGHTING.
2. PROVIDE OCCUPANCY SENSOR FOR SECOND FLOOR ADMINISTRATIVE OFFICE LIGHTING.

SYMBOL	DESCRIPTION	DATE	APPR.



**ch2m.**  
2411 Dulles Corner Park  
Suite 500  
Herndon, VA 20177

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE 06/02/2016
DES PTJ   DRW IHK   CHK BDC
<<PM/DM>> MHP
BRANCH MANAGER
CHIEF ENG/ARCH
<<XXX>>

NAVAL FACILITIES ENGINEERING COMMAND  
NORFOLK, VA  
HVIC AND DDC  
FACILITY OPTIMIZATION  
BUILDING LP-34  
FIRST AND SECOND FLOOR PLANS - WING A

SCALE:	AS NOTED
EPROJECT NO.:	1333285
CONSTR. CONTR. NO.:	N62583-11-D-0533
NAVFAC DRAWING NO.:	12724408
SHEET	40 OF 119

**M-101**  
DRAWING REVISION: 10 MAY 2014

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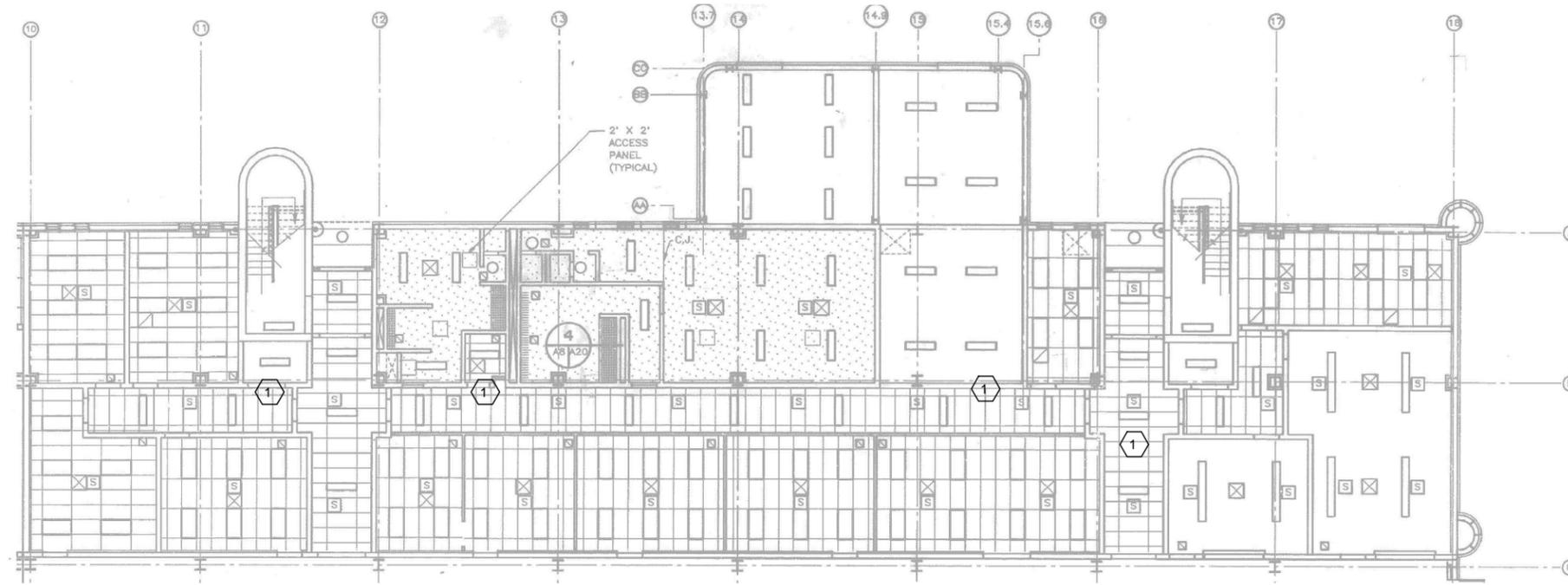
5

D

C

B

A



**FIRST FLOOR REFLECTIVE CEILING PLAN - 'B' WING**

3/32"=1'-0"



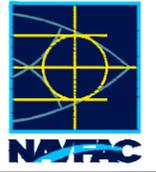
**GENERAL NOTES**

1. THIS PROJECT INCLUDES IMPLEMENTATION OF ECM(S) WITHIN THE FACILITY. PROVIDE EQUIPMENT AND CONTROL COMPONENTS FOR A COMPLETE AND FUNCTIONAL SYSTEM.
2. APPROXIMATE LOCATIONS OF EQUIPMENT ARE INDICATED ON CONCEPT DRAWINGS. APPLICABLE NOTES ARE IDENTIFIED BY HEXAGONAL FLAGS.
3. EXACT LOCATIONS FOR EXISTING EQUIPMENT AND SUPPORT INFRASTRUCTURE ARE NOT KNOWN. CONTRACTOR SHALL FIELD-LOCATE EXISTING EQUIPMENT AND MODIFY THE BUILDING SYSTEMS TO SUPPORT ECM IMPLEMENTATION.

**SHEET KEYNOTES**

- 1 PROVIDE MINIMUM FOUR OCCUPANCY SENSORS TO CONTROL FIRST FLOOR CORRIDOR LIGHTING.
- 2 PROVIDE OCCUPANCY SENSOR FOR SECOND FLOOR ADMINISTRATIVE OFFICE LIGHTING.

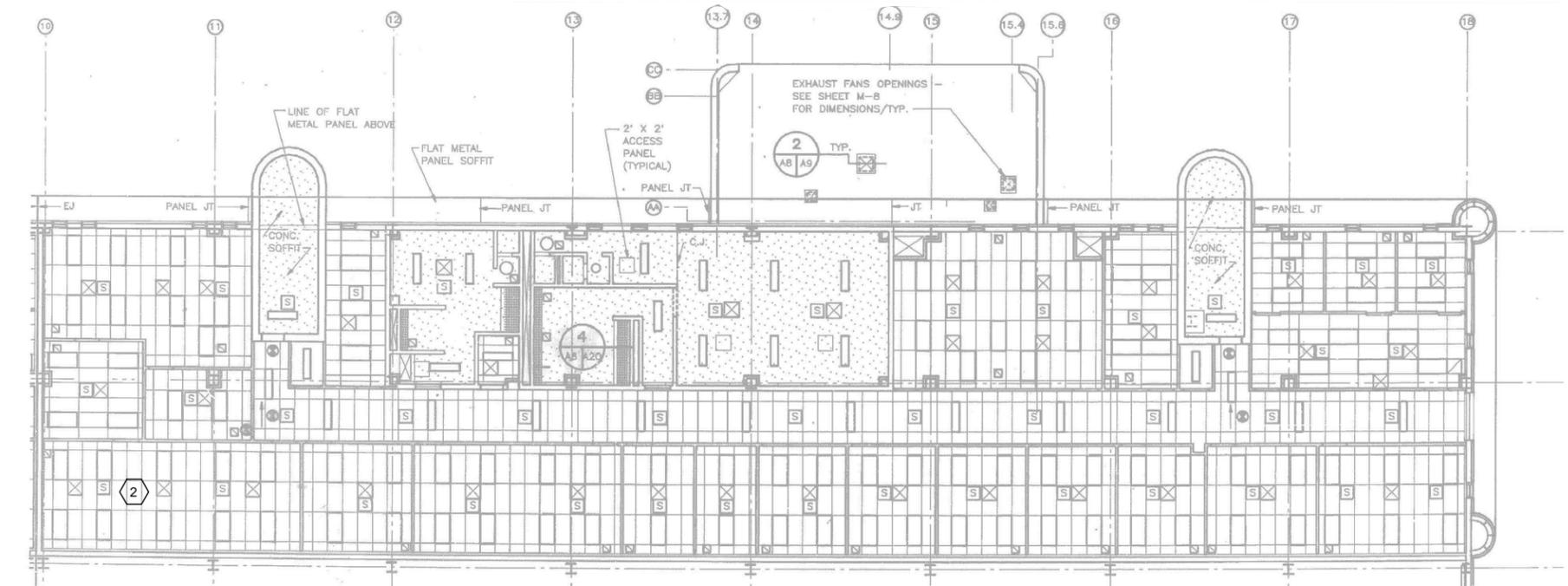
SYMBOL	DESCRIPTION	DATE	APPROVED



**ch2m.**  
2411 Dulles Corner Park  
Suite 500  
Herndon, VA 20177

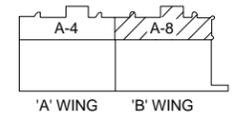
APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE 06/02/2016
DES. PTJ   DRW. IHK   CHK. BDC
<<PM/DM>> MHP
BRANCH MANAGER
CHIEF ENG/ARCH
<XXX>

NAVFAC  
NAVAL FACILITIES ENGINEERING COMMAND  
NORFOLK, VA  
DFSP  
HVC AND DDC  
FACILITY OPTIMIZATION  
BUILDING LP-34  
FIRST AND SECOND FLOOR PLANS - WING B



**SECOND FLOOR REFLECTIVE CEILING PLAN - 'B' WING**

3/32"=1'-0"



**KEY PLAN**

SCALE: AS NOTED
EPROJECT NO.: 1333285
CONSTR. CONTR. NO. N62583-11-D-0533
NAVFAC DRAWING NO. 12724409
SHEET 41 OF 119

**M-102**  
DRAWING REVISION: 10 MAY 2014

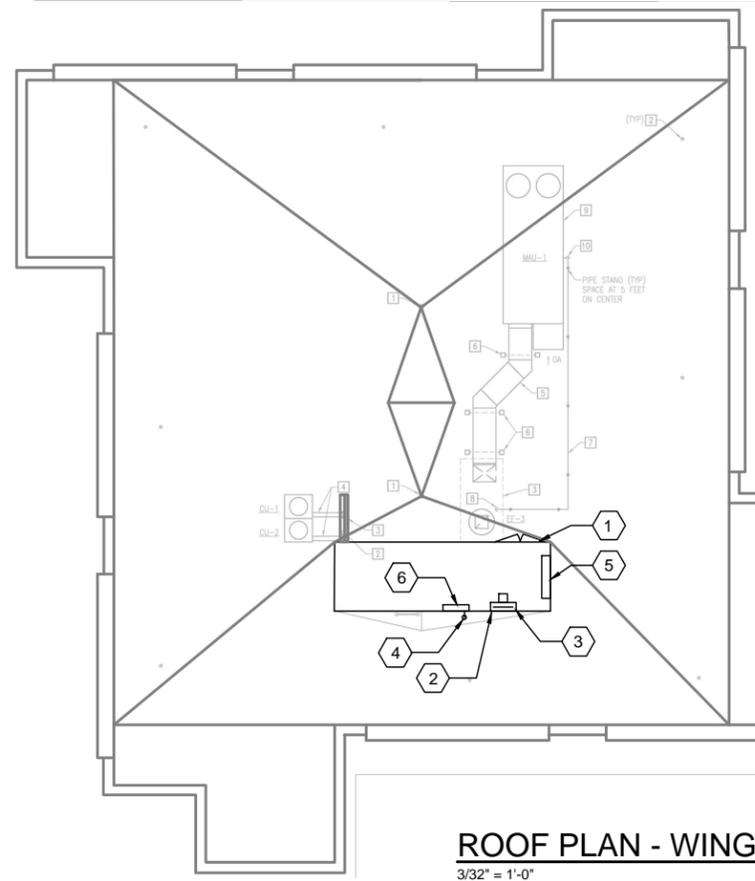
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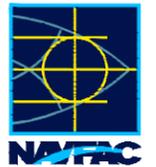
BUILDING O-22



**ROOF PLAN - WING A**  
3/32" = 1'-0"

**GENERAL NOTES**

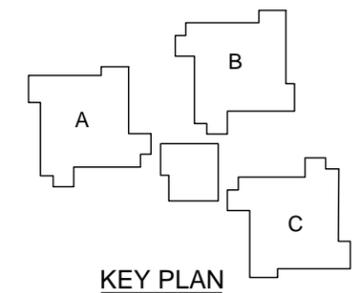
1. THIS PROJECT INCLUDES IMPLEMENTATION OF ECM(S) WITHIN THE FACILITY. PROVIDE EQUIPMENT AND CONTROL COMPONENTS FOR A COMPLETE AND FUNCTIONAL SYSTEM.
2. APPROXIMATE LOCATIONS OF EQUIPMENT ARE INDICATED ON CONCEPT DRAWINGS. APPLICABLE NOTES ARE IDENTIFIED BY HEXAGONAL FLAGS.
3. EXACT LOCATIONS FOR EXISTING EQUIPMENT AND SUPPORT INFRASTRUCTURE ARE NOT KNOWN. CONTRACTOR SHALL FIELD-LOCATE EXISTING EQUIPMENT AND MODIFY THE BUILDING SYSTEMS TO SUPPORT ECM IMPLEMENTATION.
4. ECM WORK INVOLVES ADDING AN ECONOMIZER VENTILATION SYSTEM TO THE ELEVATOR MACHINE ROOM WHICH WILL DISABLE THE EXISTING DX SPLIT SYSTEM AND ENERGIZE FORCED VENTILATION FOR COOLING THE ROOM WHEN THE OUTDOOR TEMPERATURE DROPS BELOW 65 DEGREE F.
5. CONTRACTOR SHALL DEVELOP THE DESIGN FOR THE VENTILATION SYSTEM ALONG WITH LOCAL CONTROLS TO SEQUENCE THE COOLING SYSTEMS. INACTIVE FORCED VENTILATION COMPONENTS SHALL NOT ALLOW INFILTRATION WHEN THE MECHANICAL COOLING SYSTEM IS ACTIVE.
6. ELECTRICAL PANELBOARDS ARE LOCATED ON THE FLOOR BELOW THE ELEVATOR MACHINE ROOM. ACCESS IS THROUGH THE 6TH FLOOR CORRIDOR.
7. WORK WILL BE EXECUTED WITHIN THE EXISTING THREE ELEVATOR MACHINE ROOMS IN CLOSE PROXIMITY TO THE ELEVATOR HOIST. CONTRACTOR SHALL COORDINATE DAILY OUTAGE AND LOCK OUT TAG OUT OF ELEVATOR HOISTING EQUIPMENT WITH CONTRACTING OFFICER.
8. A ROOF PLAN IS USED TO REPRESENT THE MAJORITY OF WORK IN THE ELEVATOR MACHINE ROOM SINCE RECORD DRAWINGS ARE NOT FULLY LEGIBLE. REFER TO INCLUDED RECORD DRAWINGS FOR SPATIAL RELATIONSHIPS BETWEEN SYSTEM COMPONENTS.
9. WING A INDICATED. WINGS B AND C ARE SIMILAR.
10. RECORD DRAWING ELEVATIONS INCLUDED FOR REFERENCE. IGNORE ALL ANNOTATIONS EXCEPT FOR NUMBERED NOTES IN HEXAGONAL FLAGS.
11. ELEVATION PLAN IS TYPICAL FOR WINGS A, B, AND C.



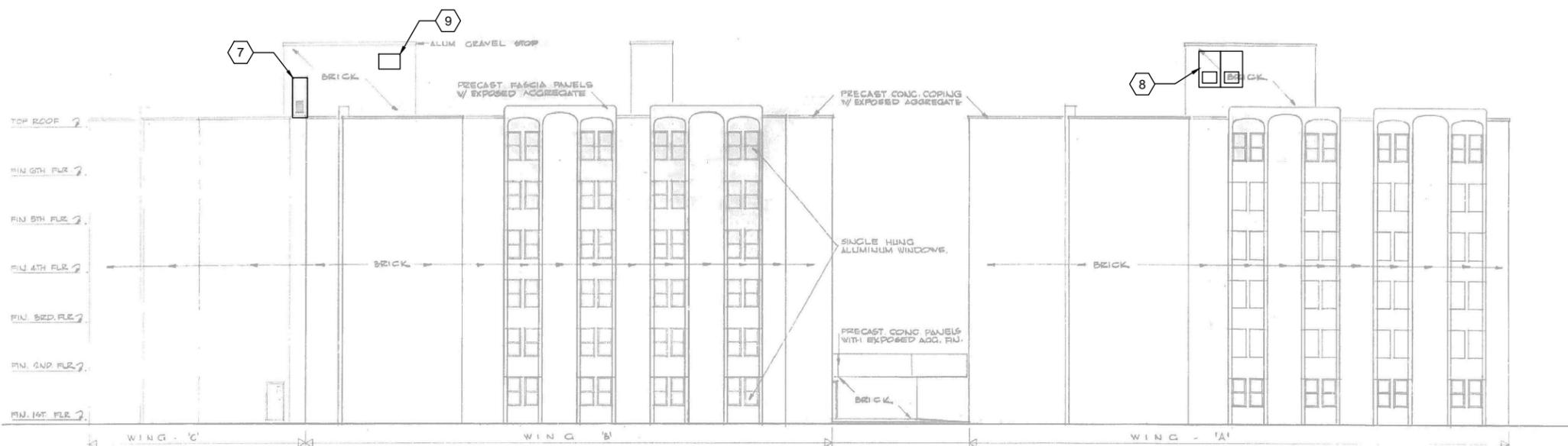
**ch2m.**  
2411 Dulles Corner Park  
Suite 500  
Herndon, VA 20177

**SHEET KEYNOTES**

1. INSTALL GALVANIZED BACKDRAFT DAMPER(S) IN EXISTING METAL DOOR. PROVIDE GRILL(S) PAINTED SAME COLOR AS DOOR TO CONCEAL DAMPER MECHANISM. SIZE OPENING(S) TO ELIMINATE WATER CARRYOVER.
2. PROVIDE NEW OPENING COORDINATED WITH STRUCTURAL IN CMU/BRICK EXTERIOR WALL OF MACHINE ROOM.
3. INSTALL EXHAUST FAN EQUIPPED WITH INTAKE GUARD AND BACKDRAFT DAMPER IN WALL OPENING. INSTALL LOUVER FLUSH WITH BRICK VENEER.
4. SUNSHADED OUTDOOR AIR SENSOR. ROUTE TO LOCAL CONTROL PANEL INSIDE MACHINE ROOM.
5. INTERLOCK EXISTING DX COOLING SYSTEM WITH VENTILATION FAN OPERATION.
6. LOCAL CONTROL PANEL WITH DISCONNECT AND MOTOR PROTECTION. ROUTE POWER FROM NEAREST CIRCUIT OR PANELBOARD.
7. ROOF ACCESS DOOR.
8. ELEVATOR MACHINE ROOM ACCESS DOORS WITH INTAKE LOUVER(S). MACHINE ROOM FLOOR ELEVATION IS APPROXIMATELY 8'-0" ABOVE ROOF.
9. EXHAUST FAN LOCATION.

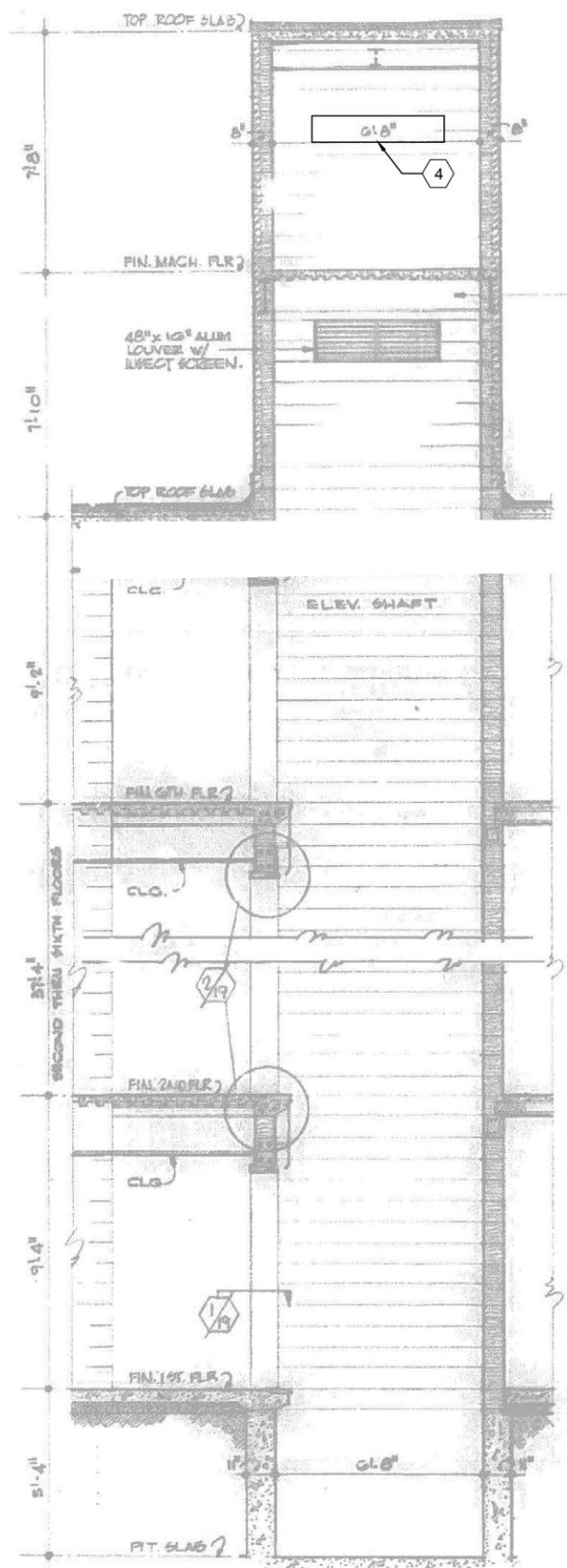


**KEY PLAN**

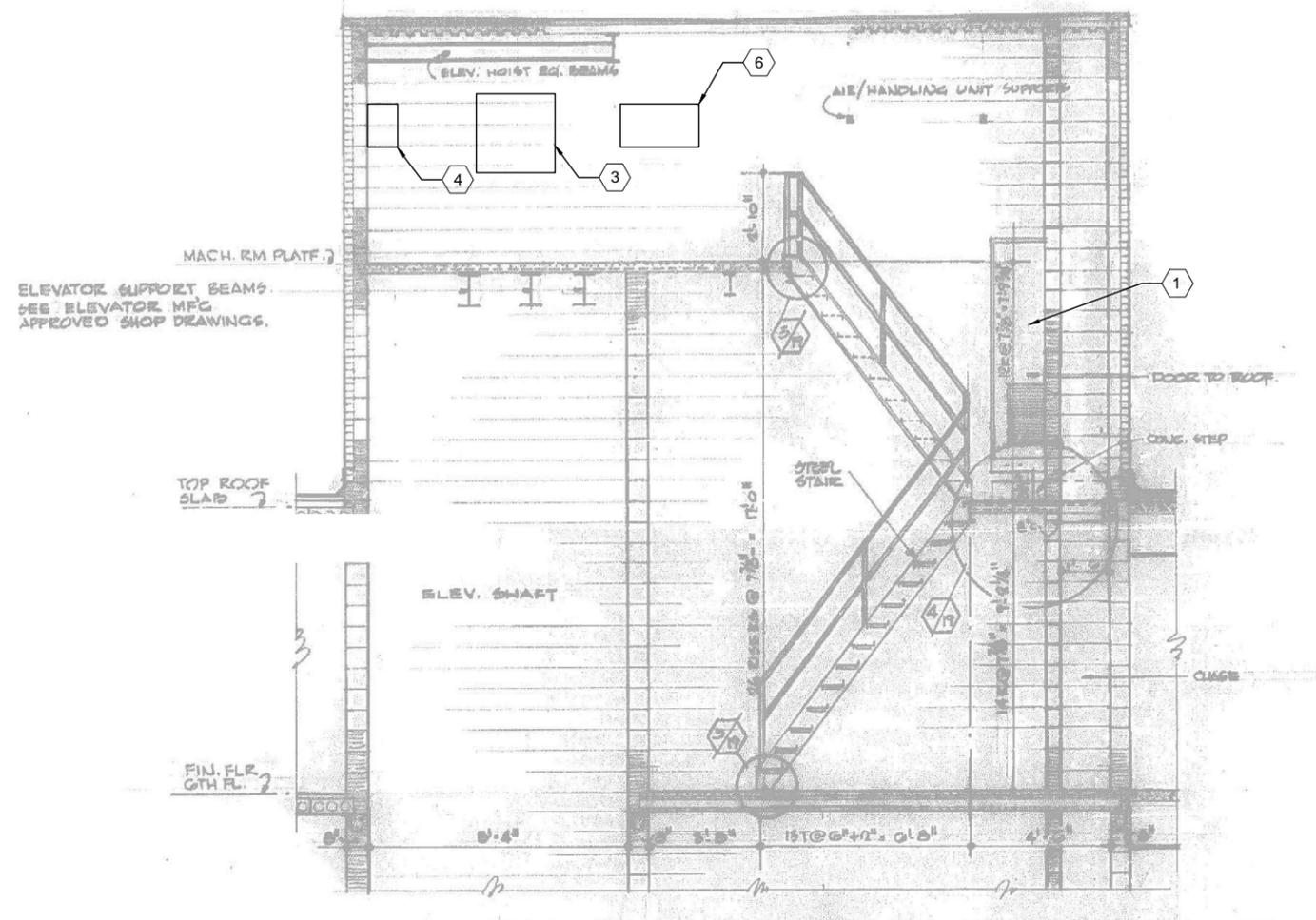


**ELEVATION**  
NTS

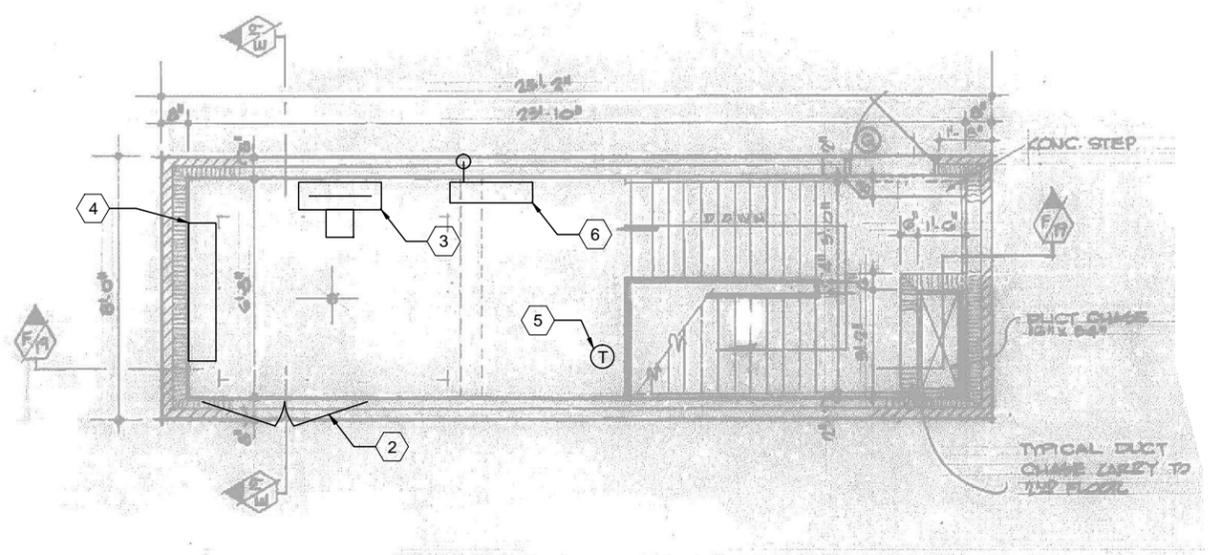
APPROVED	DATE
FOR COMMANDER NAVFAC	DATE
ACTIVITY	DATE
SATISFACTORY TO DATE	06/02/2016
DES. PTJ   DRW. IHK   CHK. BDC	
<<PM/DM>>	MHP
BRANCH MANAGER	
CHIEF ENG/ARCH	
<<XXX>>	
NAVFAC ENGINEERING COMMAND	NORFOLK, VA
<b>HVAC AND DDC FACILITY OPTIMIZATION</b>	
BUILDING O-22	
ROOF PLAN - WINGS A AND ELEVATION REFERENCE	
SCALE:	AS NOTED
PROJECT NO.:	1333285
CONSTR. CONTR. NO.:	N62583-11-D-0533
NAVFAC DRAWING NO.:	12724410
SHEET	42 OF 119
<b>M-101</b>	
DRAWING REVISION: 10 MAY 2014	



**SECTION THRU ELEVATOR SHAFT**  
NTS



**SECTION THRU ELEVATOR SHAFT**  
NTS



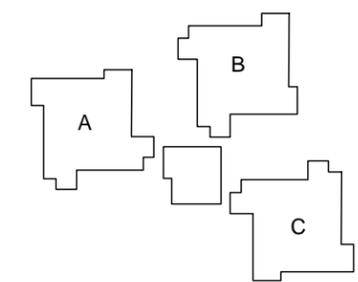
**MACHINE ROOM FLOOR PLAN**  
NTS

**GENERAL NOTES**

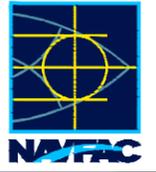
1. THIS PROJECT INCLUDES IMPLEMENTATION OF ECM(S) WITHIN THE FACILITY. PROVIDE EQUIPMENT AND CONTROL COMPONENTS FOR A COMPLETE AND FUNCTIONAL SYSTEM.
2. APPROXIMATE LOCATIONS OF EQUIPMENT ARE INDICATED ON CONCEPT DRAWINGS. APPLICABLE NOTES ARE IDENTIFIED BY HEXAGONAL FLAGS.
3. EXACT LOCATIONS FOR EXISTING EQUIPMENT AND SUPPORT INFRASTRUCTURE ARE NOT KNOWN. CONTRACTOR SHALL FIELD-LOCATE EXISTING EQUIPMENT AND MODIFY THE BUILDING SYSTEMS TO SUPPORT ECM IMPLEMENTATION.
4. ECM WORK INVOLVES ADDING AN ECONOMIZER VENTILATION SYSTEM TO THE ELEVATOR MACHINE ROOM WHICH WILL DISABLE THE EXISTING DX SPLIT SYSTEM AND ENERGIZE FORCED VENTILATION FOR COOLING THE ROOM WHEN THE OUTDOOR TEMPERATURE DROPS BELOW 65 DEGREE F.
5. CONTRACTOR SHALL DEVELOP THE DESIGN FOR THE VENTILATION SYSTEM ALONG WITH LOCAL CONTROLS TO SEQUENCE THE COOLING SYSTEMS. INACTIVE FORCED VENTILATION COMPONENTS SHALL NOT ALLOW INFILTRATION WHEN THE MECHANICAL COOLING SYSTEM IS ACTIVE.
6. ELECTRICAL PANELBOARDS ARE LOCATED ON THE FLOOR BELOW THE ELEVATOR MACHINE ROOM. ACCESS IS THROUGH THE 6TH FLOOR CORRIDOR.
7. WORK WILL BE EXECUTED WITHIN THE EXISTING THREE ELEVATOR MACHINE ROOMS IN CLOSE PROXIMITY TO THE ELEVATOR HOIST. CONTRACTOR SHALL COORDINATE DAILY OUTAGE AND LOCK OUT TAG OUT OF ELEVATOR HOISTING EQUIPMENT WITH CONTRACTING OFFICER.
8. A ROOF PLAN IS USED TO REPRESENT THE MAJORITY OF WORK IN THE ELEVATOR MACHINE ROOM SINCE RECORD DRAWINGS ARE NOT FULLY LEGIBLE. REFER TO INCLUDED RECORD DRAWINGS FOR SPATIAL RELATIONSHIPS BETWEEN SYSTEM COMPONENTS.
9. WING A INDICATED. WINGS B AND C ARE SIMILAR.
10. RECORD DRAWING ELEVATIONS INCLUDED FOR REFERENCE. IGNORE ALL ANNOTATIONS EXCEPT FOR NUMBERED NOTES IN HEXAGONAL FLAGS.
11. ELEVATION PLAN IS TYPICAL FOR WINGS A, B, AND C.

**SHEET KEYNOTES**

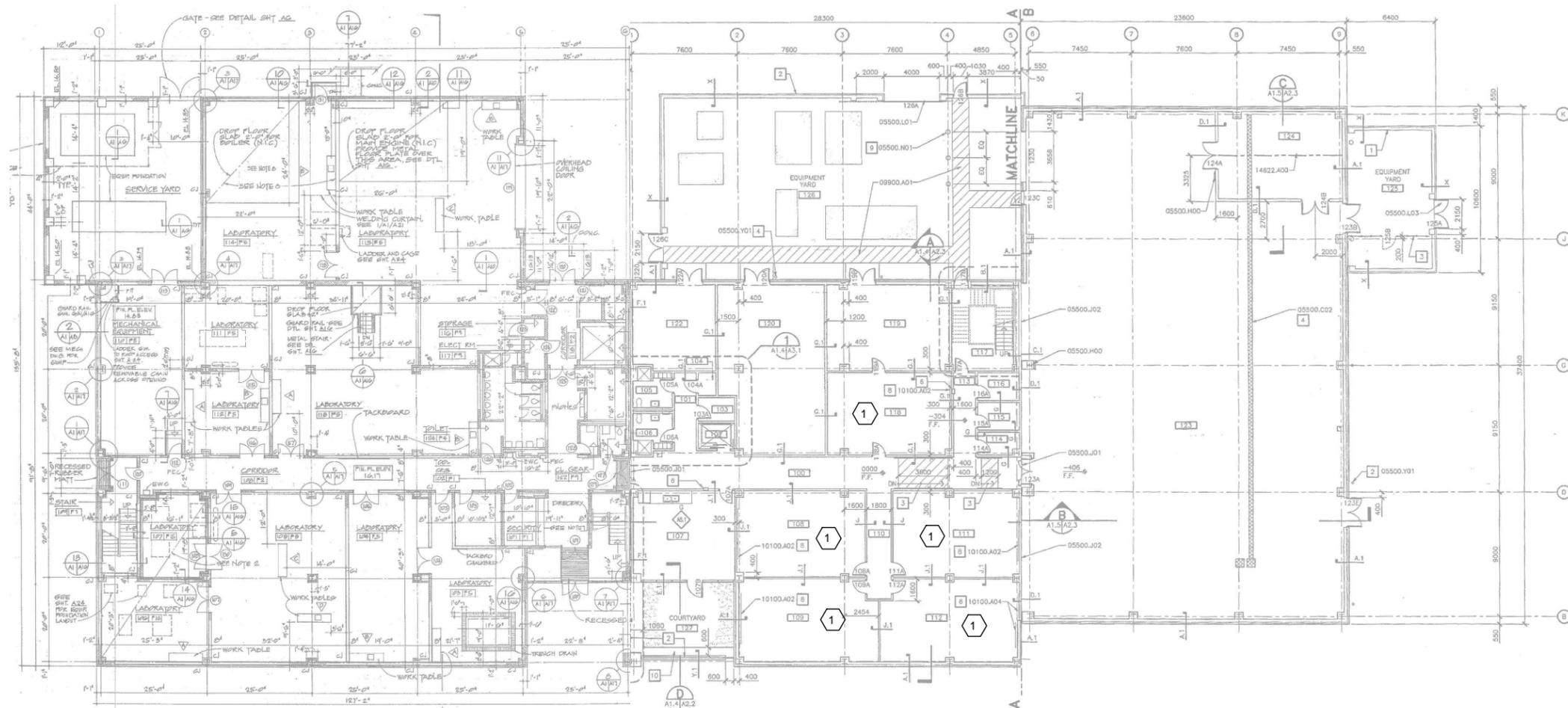
1. ROOF ACCESS DOOR.
2. ELEVATOR MACHINE ROOM ACCESS DOORS WITH INTAKE LOUVER(S). MACHINE ROOM FLOOR ELEVATION IS APPROXIMATELY 8'-0" ABOVE ROOF.
3. EXHAUST FAN LOCATION.
4. EXISTING DX MINI-SPLIT EVAPORATOR LOCATION.
5. MINI-SPLIT THERMOSTAT.
6. CONTROL PANEL LOCATION.



**KEY PLAN**

	APPR. _____ DATE _____
	SYN. _____ DESCRIPTION _____
	
 2411 Dulles Corner Park Suite 500 Herndon, VA 20177	
	ACTIVITY _____
SATISFACTORY TO DATE 06/02/2016	
DES. PTJ   DRW. IHK   CHK. BDC	
BRANCH MANAGER MHP	
CHIEF ENG/ARCH <XXX>	
NORFOLK, VA	
<b>NAVAL FACILITIES ENGINEERING COMMAND</b> <b>HVAC AND DDC</b> <b>FACILITY OPTIMIZATION</b> BUILDING O-22 <b>MACHINE ROOM FLOOR PLAN AND ELEVATOR SHAFT SECTIONS</b>	
SCALE: AS NOTED	
EPROJECT NO.: 1333285	
CONSTR. CONTR. NO. N62583-11-D-0533	
NAVFAC DRAWING NO. 12724411	
SHEET 43 OF 119	
<b>M-102</b>	
DRAWING REVISION: 10 MAY 2014	

BUILDING O-26



**FIRST FLOOR PLAN**  
1/16"=1'-0"

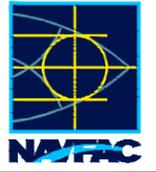
**GENERAL NOTES**

1. THIS PROJECT INCLUDES REPLACING THE EXISTING DDC SYSTEM THROUGHOUT THE FACILITY. UPGRADE CONSISTS OF REPLACING OR ADDING CONTROLS, VALVES AS NECESSARY, ACTUATORS, AND SENSORS FOR ALL EQUIPMENT PER THE DDC POINTS LIST INCLUDED IN PART 6 OF THIS RFP. WORK ALSO INCLUDES IMPLEMENTATION OF ECM(S) WITHIN THE FACILITY.
2. PROVIDE EQUIPMENT AND CONTROL COMPONENTS FOR A COMPLETE AND FUNCTIONAL SYSTEM.
3. RECORD DRAWINGS OF THE MECHANICAL SYSTEMS, CURRENT POINTS LIST AND SEQUENCES, AND DDC CONNECTED COMPONENTS ARE INCLUDED FOR REFERENCE ONLY TO REPRESENT CURRENTLY INSTALLED CONTROL EQUIPMENT.
4. THESE CONCEPT DRAWINGS ARE INCLUDED TO DELINEATE THE EXTENT OF THE WORK AREA AND ARE NOT INTENDED TO CONVEY DESIGN DETAILS FOR THE DDC SYSTEM. DESIGN DETAILS ARE LOCATED THROUGHOUT THIS RFP.
5. APPROXIMATE LOCATIONS OF EQUIPMENT ARE INDICATED ON CONCEPT DRAWINGS. APPLICABLE NOTES ARE IDENTIFIED BY HEXAGONAL FLAGS.
6. EXACT LOCATIONS FOR EXISTING EQUIPMENT, SUPPORT INFRASTRUCTURE, AND AVAILABLE DDC PANELS ARE NOT KNOWN. CONTRACTOR SHALL FIELD-LOCATE EXISTING EQUIPMENT AND MODIFY THE BUILDING SYSTEMS AS NECESSARY FOR UPGRADE OF THE DDC SYSTEM AND ECM IMPLEMENTATION.
7. PHYSICAL LAYOUT OF MECHANICAL ROOMS MAY DIFFER FROM RECORD DRAWING PLANS. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF CENTRAL PLANT EQUIPMENT, DUCTWORK, AND PIPING.
8. TYPICAL MECHANICAL EQUIPMENT IS CALLED OUT ON THESE CONCEPT DRAWINGS TO REPRESENT GENERAL CONFIGURATION AND LOCATIONS OF ITEMS. ALL EQUIPMENT TO BE CONTROLLED IS NOT HIGHLIGHTED. FIELD VERIFY LOCATIONS OF MINOR ITEMS FOR CONTROL.
9. ORIGINAL SECTION OF BUILDING HAS 8 AHU WITH INLET VANE VOLUME CONTROL. RECORD DRAWINGS INDICATE THAT ALL FAN MOTORS ARE LESS THAN 10 HP.

**SHEET KEYNOTES**

1. PROVIDE OCCUPANCY SENSOR FOR CLASSROOM LIGHTING FOR ECM.

REV	DATE	DESCRIPTION



**ch2m**  
2411 Dulles Corner Park  
Suite 500  
Herndon, VA 20177

APPROVED
FOR COMMANDER NAFAC
ACTIVITY
SATISFACTORY TO DATE 06/02/2016
DES. PTJ   DRW. IJK   CHK. BDC
<<PM/DM>>
BRANCH MANAGER MHP
CHIEF ENG/ARCH
<<XXX>>

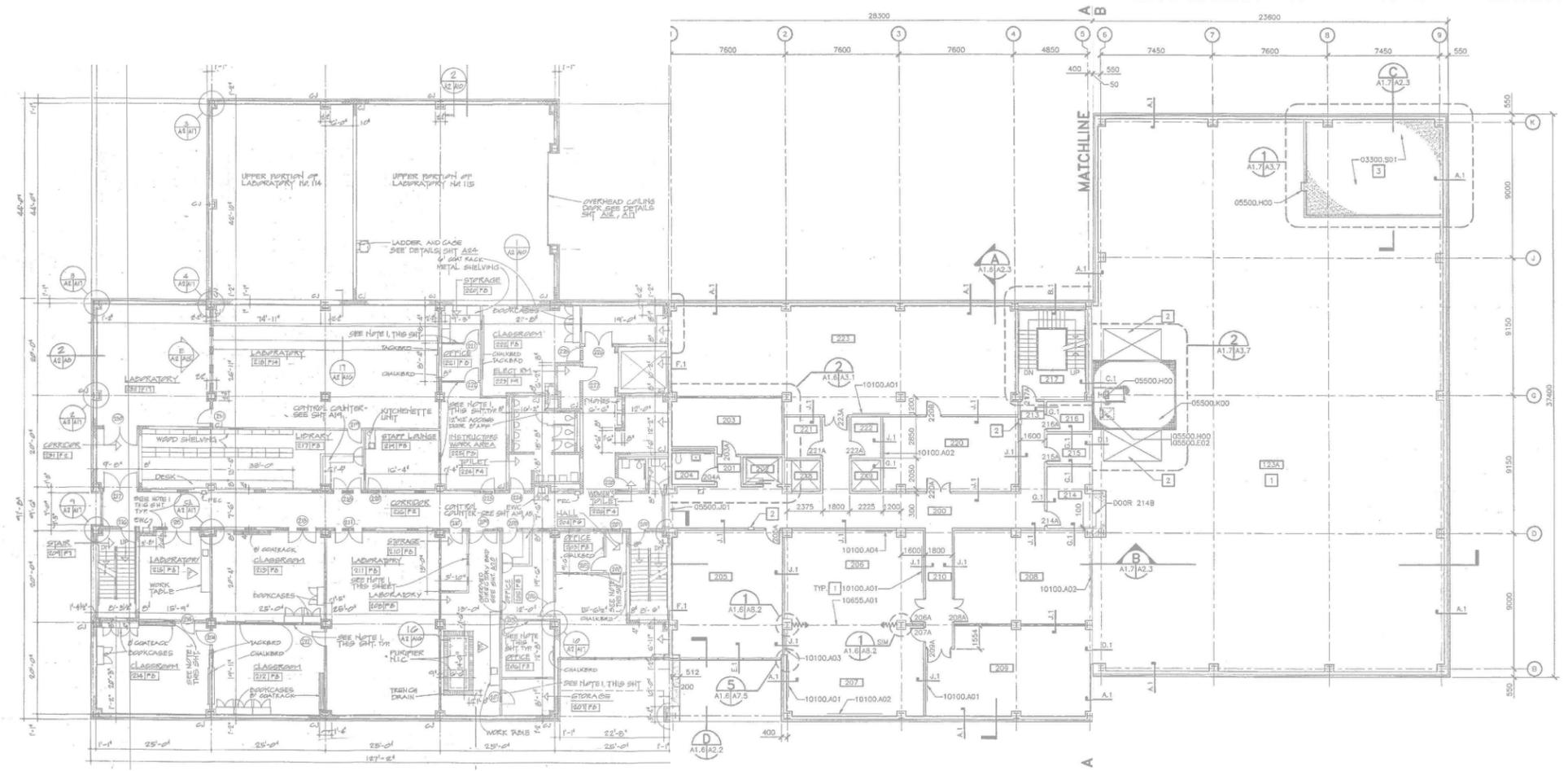
NAVAL FACILITIES ENGINEERING COMMAND  
NORFOLK, VA  
DFSP  
**HVAC AND DDC FACILITY OPTIMIZATION**  
BUILDING O-26  
FIRST FLOOR PLAN

SCALE:	AS NOTED
PROJECT NO.:	1333285
CONSTR. CONTR. NO.:	N62583-11-D-0533
NAVFAC DRAWING NO.:	12724412
SHEET	44 OF 119

**A-101**

1 2 3 4 5

D  
C  
B  
A



**SECOND FLOOR PLAN**  
1/16"=1'-0"

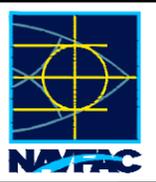
**GENERAL NOTES**

1. THIS PROJECT INCLUDES REPLACING THE EXISTING DDC SYSTEM THROUGHOUT THE FACILITY. UPGRADE CONSISTS OF REPLACING OR ADDING CONTROLS, VALVES AS NECESSARY, ACTUATORS, AND SENSORS FOR ALL EQUIPMENT PER THE DDC POINTS LIST INCLUDED IN PART 6 OF THIS RFP. WORK ALSO INCLUDES IMPLEMENTATION OF ECM(S) WITHIN THE FACILITY.
2. PROVIDE EQUIPMENT AND CONTROL COMPONENTS FOR A COMPLETE AND FUNCTIONAL SYSTEM.
3. RECORD DRAWINGS OF THE MECHANICAL SYSTEMS, CURRENT POINTS LIST AND SEQUENCES, AND DDC CONNECTED COMPONENTS ARE INCLUDED FOR REFERENCE ONLY TO REPRESENT CURRENTLY INSTALLED CONTROL EQUIPMENT.
4. THESE CONCEPT DRAWINGS ARE INCLUDED TO DELINEATE THE EXTENT OF THE WORK AREA AND ARE NOT INTENDED TO CONVEY DESIGN DETAILS FOR THE DDC SYSTEM. DESIGN DETAILS ARE LOCATED THROUGHOUT THIS RFP.
5. APPROXIMATE LOCATIONS OF EQUIPMENT ARE INDICATED ON CONCEPT DRAWINGS. APPLICABLE NOTES ARE IDENTIFIED BY HEXAGONAL FLAGS.
6. EXACT LOCATIONS FOR EXISTING EQUIPMENT, SUPPORT INFRASTRUCTURE, AND AVAILABLE DDC PANELS ARE NOT KNOWN. CONTRACTOR SHALL FIELD-LOCATE EXISTING EQUIPMENT AND MODIFY THE BUILDING SYSTEMS AS NECESSARY FOR UPGRADE OF THE DDC SYSTEM AND ECM IMPLEMENTATION.
7. PHYSICAL LAYOUT OF MECHANICAL ROOMS MAY DIFFER FROM RECORD DRAWING PLANS. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF CENTRAL PLANT EQUIPMENT, DUCTWORK, AND PIPING.
8. TYPICAL MECHANICAL EQUIPMENT IS CALLED OUT ON THESE CONCEPT DRAWINGS TO REPRESENT GENERAL CONFIGURATION AND LOCATIONS OF ITEMS. ALL EQUIPMENT TO BE CONTROLLED IS NOT HIGHLIGHTED. FIELD VERIFY LOCATIONS OF MINOR ITEMS FOR CONTROL.
9. ORIGINAL SECTION OF BUILDING HAS 8 AHU WITH INLET VANE VOLUME CONTROL. RECORD DRAWINGS INDICATE THAT ALL FAN MOTORS ARE LESS THAN 10 HP.

**SHEET KEYNOTES**

1. PROVIDE OCCUPANCY SENSOR FOR DUAL LEVEL CLASSROOM LIGHTING FOR ECM.

REV	DESCRIPTION	DATE	APPR



**ch2m**  
2411 Dulles Corner Park  
Suite 500  
Herndon, VA 20177

APPROVED	FOR COMMANDER NAFAC
ACTIVITY	
SATISFACTORY TO DATE	06/02/2016
DES	PTJ   DRW   IHK   CHK   BDC
<<PM/DM>>	MHP
BRANCH MANAGER	
CHIEF ENG/ARCH	
<<XXX>>	

NAVAL FACILITIES ENGINEERING COMMAND  
NORFOLK, VA  
DFSP  
**HVAC AND DDC FACILITY OPTIMIZATION**  
BUILDING O-26  
SECOND FLOOR PLAN

SCALE:	AS NOTED
EPROJECT NO.:	1333285
CONSTR. CONTR. NO.	N62583-11-D-0533
NAFAC DRAWING NO.	12724413
SHEET	45 OF 119
<b>A-102</b>	

1 2 3 4 5

1

2

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4

5

D

C

B

A

D

C

B

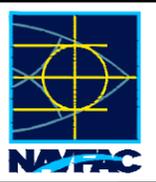
A

### GENERAL NOTES

1. THIS PROJECT INCLUDES REPLACING THE EXISTING DDC SYSTEM THROUGHOUT THE FACILITY. UPGRADE CONSISTS OF REPLACING OR ADDING CONTROLS, VALVES AS NECESSARY, ACTUATORS, AND SENSORS FOR ALL EQUIPMENT PER THE DDC POINTS LIST INCLUDED IN PART 6 OF THIS RFP. WORK ALSO INCLUDES IMPLEMENTATION OF ECM(S) WITHIN THE FACILITY.
2. PROVIDE EQUIPMENT AND CONTROL COMPONENTS FOR A COMPLETE AND FUNCTIONAL SYSTEM.
3. RECORD DRAWINGS OF THE MECHANICAL SYSTEMS, CURRENT POINTS LIST AND SEQUENCES, AND DDC CONNECTED COMPONENTS ARE INCLUDED FOR REFERENCE ONLY TO REPRESENT CURRENTLY INSTALLED CONTROL EQUIPMENT.
4. THESE CONCEPT DRAWINGS ARE INCLUDED TO DELINEATE THE EXTENT OF THE WORK AREA AND ARE NOT INTENDED TO CONVEY DESIGN DETAILS FOR THE DDC SYSTEM. DESIGN DETAILS ARE LOCATED THROUGHOUT THIS RFP.
5. APPROXIMATE LOCATIONS OF EQUIPMENT ARE INDICATED ON CONCEPT DRAWINGS. APPLICABLE NOTES ARE IDENTIFIED BY HEXAGONAL FLAGS.
6. EXACT LOCATIONS FOR EXISTING EQUIPMENT, SUPPORT INFRASTRUCTURE, AND AVAILABLE DDC PANELS ARE NOT KNOWN. CONTRACTOR SHALL FIELD-LOCATE EXISTING EQUIPMENT AND MODIFY THE BUILDING SYSTEMS AS NECESSARY FOR UPGRADE OF THE DDC SYSTEM AND ECM IMPLEMENTATION.
7. PHYSICAL LAYOUT OF MECHANICAL ROOMS MAY DIFFER FROM RECORD DRAWING PLANS. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF CENTRAL PLANT EQUIPMENT, DUCTWORK, AND PIPING.
8. TYPICAL MECHANICAL EQUIPMENT IS CALLED OUT ON THESE CONCEPT DRAWINGS TO REPRESENT GENERAL CONFIGURATION AND LOCATIONS OF ITEMS. ALL EQUIPMENT TO BE CONTROLLED IS NOT HIGHLIGHTED. FIELD VERIFY LOCATIONS OF MINOR ITEMS FOR CONTROL.
9. ORIGINAL SECTION OF BUILDING HAS 8 AHU WITH INLET VANE VOLUME CONTROL. RECORD DRAWINGS INDICATE THAT ALL FAN MOTORS ARE LESS THAN 10 HP.

### SHEET KEYNOTES

1. PROVIDE OCCUPANCY SENSOR FOR CLASSROOM LIGHTING FOR ECM.
2. PROVIDE OCCUPANCY SENSOR FOR DUAL LEVEL CLASSROOM LIGHTING FOR ECM.



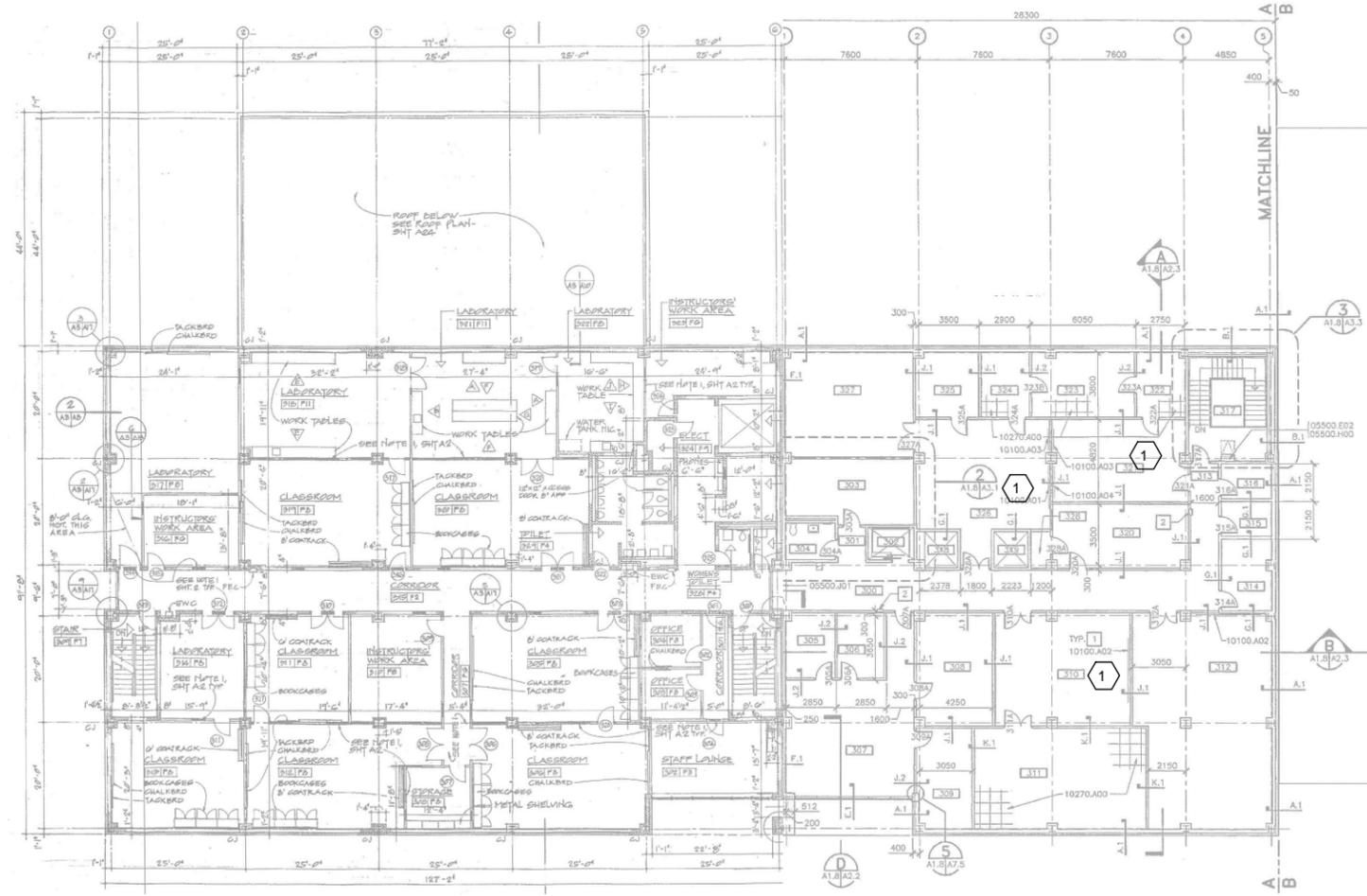
**ch2m**  
 2411 Dulles Corner Park  
 Suite 500  
 Herndon, VA 20177

APPROVED: \_\_\_\_\_  
 FOR COMMANDER NWFAC  
 ACTIVITY  
 SATISFACTORY TO DATE: 06/02/2016  
 DES: PTJ | DRW: IHK | CHK: BDC  
 <<PM/DM>>  
 BRANCH MANAGER: MHP  
 CHIEF: ENG/ARCH  
 <<XXX>>

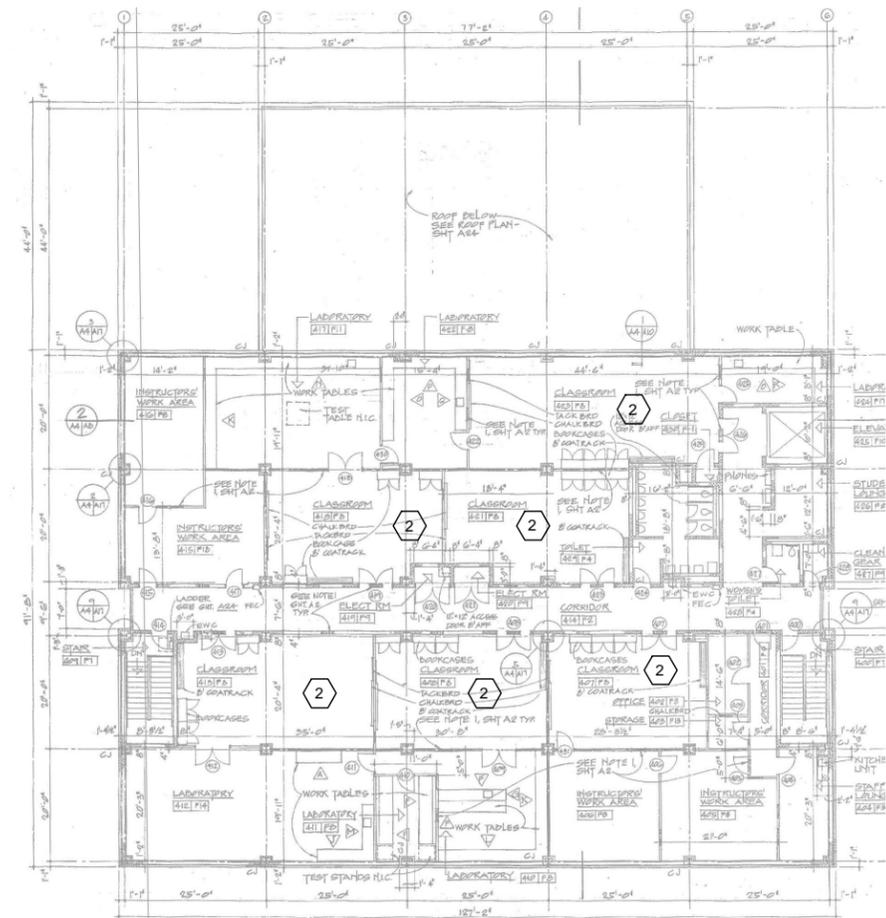
NAVAL FACILITIES ENGINEERING COMMAND  
 NAVY ATLANTIC  
 DFSP  
 NORFOLK, VA  
 HVAC AND DDC  
 FACILITY OPTIMIZATION  
 BUILDING O-26  
 THIRD AND FOURTH FLOOR PLANS

SCALE: AS NOTED  
 EPROJECT NO.: 1333285  
 CONSTR. CONTR. NO.: N62583-11-D-0533  
 NAVFAC DRAWING NO.: 12724414  
 SHEET 46 OF 119

A-103  
 DRAWING REVISION: 10 MAY 2014



**THIRD FLOOR PLAN**  
 1/16"=1'-0"



**FOURTH FLOOR PLAN**  
 1/16"=1'-0"



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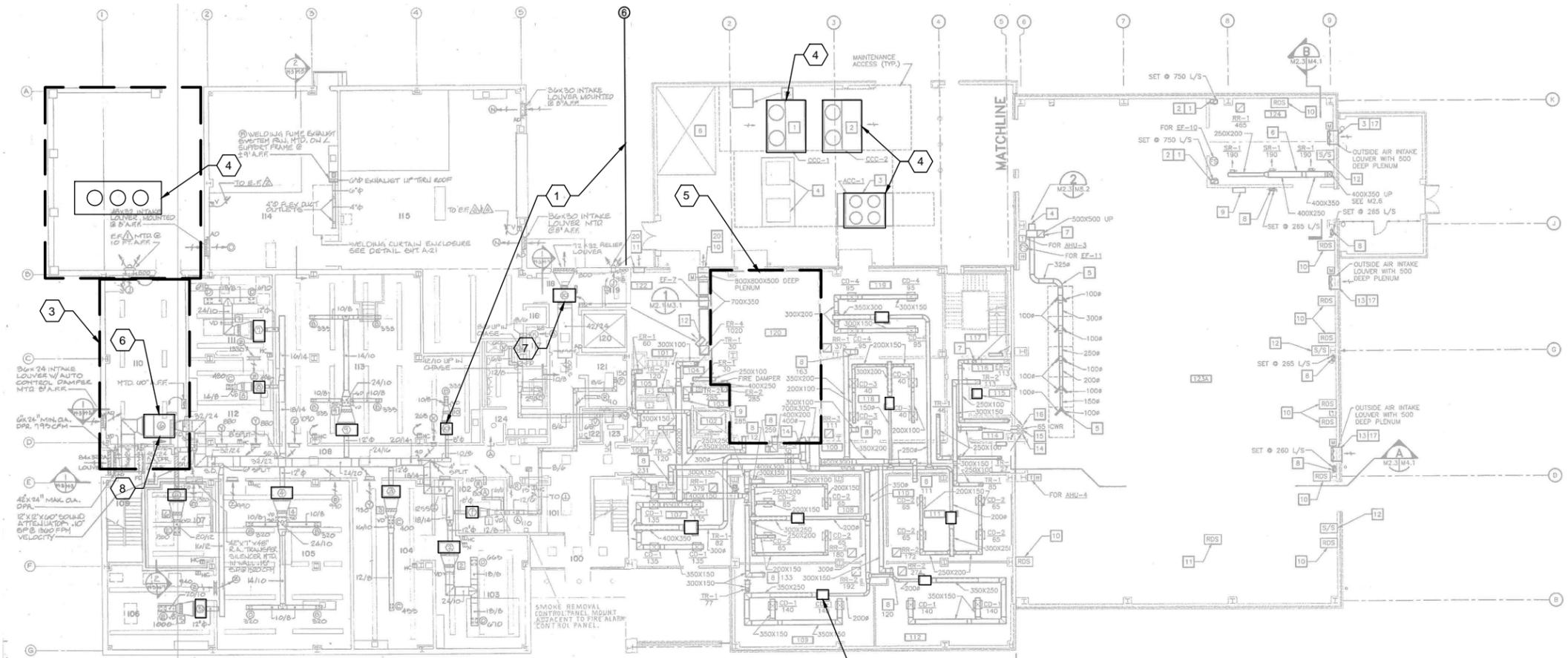
A

### GENERAL NOTES

1. THIS PROJECT INCLUDES REPLACING THE EXISTING DDC SYSTEM THROUGHOUT THE FACILITY. UPGRADE CONSISTS OF REPLACING OR ADDING CONTROLS, VALVES AS NECESSARY, ACTUATORS, AND SENSORS FOR ALL EQUIPMENT PER THE DDC POINTS LIST INCLUDED IN PART 6 OF THIS RFP. WORK ALSO INCLUDES IMPLEMENTATION OF ECM(S) WITHIN THE FACILITY.
2. PROVIDE EQUIPMENT AND CONTROL COMPONENTS FOR A COMPLETE AND FUNCTIONAL SYSTEM.
3. RECORD DRAWINGS OF THE MECHANICAL SYSTEMS, CURRENT POINTS LIST AND SEQUENCES, AND DDC CONNECTED COMPONENTS ARE INCLUDED FOR REFERENCE ONLY TO REPRESENT CURRENTLY INSTALLED CONTROL EQUIPMENT.
4. THESE CONCEPT DRAWINGS ARE INCLUDED TO DELINEATE THE EXTENT OF THE WORK AREA AND ARE NOT INTENDED TO CONVEY DESIGN DETAILS FOR THE DDC SYSTEM. DESIGN DETAILS ARE LOCATED THROUGHOUT THIS RFP.
5. APPROXIMATE LOCATIONS OF EQUIPMENT ARE INDICATED ON CONCEPT DRAWINGS. APPLICABLE NOTES ARE IDENTIFIED BY HEXAGONAL FLAGS.
6. EXACT LOCATIONS FOR EXISTING EQUIPMENT, SUPPORT INFRASTRUCTURE, AND AVAILABLE DDC PANELS ARE NOT KNOWN. CONTRACTOR SHALL FIELD-LOCATE EXISTING EQUIPMENT AND MODIFY THE BUILDING SYSTEMS AS NECESSARY FOR UPGRADE OF THE DDC SYSTEM AND ECM IMPLEMENTATION.
7. PHYSICAL LAYOUT OF MECHANICAL ROOMS MAY DIFFER FROM RECORD DRAWING PLANS. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF CENTRAL PLANT EQUIPMENT, DUCTWORK, AND PIPING.
8. TYPICAL MECHANICAL EQUIPMENT IS CALLED OUT ON THESE CONCEPT DRAWINGS TO REPRESENT GENERAL CONFIGURATION AND LOCATIONS OF ITEMS. ALL EQUIPMENT TO BE CONTROLLED IS NOT HIGHLIGHTED. FIELD VERIFY LOCATIONS OF MINOR ITEMS FOR CONTROL.
9. ORIGINAL SECTION OF BUILDING HAS 8 AHU WITH INLET VANE VOLUME CONTROL. RECORD DRAWINGS INDICATE THAT ALL FAN MOTORS ARE LESS THAN 10 HP.

### SHEET KEYNOTES

- 1 TYPICAL ORIGINAL CONSTRUCTION TERMINAL AIR BLENDER WEST OF THIS COLUMN LINE.
- TYPICAL FAN POWERED VAV BOX IN 1998 BUILDING ADDITION.
- REFER TO SHEET M-401 FOR CENTRAL MECHANICAL EQUIPMENT ASSOCIATED WITH ORIGINAL CONSTRUCTION.
- FIELD VERIFY LOCATION OF EXTERIOR MECHANICAL EQUIPMENT.
- REFER TO M-401 FOR CENTRAL MECHANICAL EQUIPMENT ASSOCIATED WITH 1998 BUILDING ADDITION.
- CENTRAL AHU FOR FIRST FLOOR OF ORIGINAL BUILDING. LOCATED IN MECHANICAL ROOM FIRST FLOOR.
- RELIEF AHU LOCATED ABOVE CEILING.
- ECM WORK INCLUDES REPAIR OF LEAKING CHILLED WATER VALVE AT AHU.



### FIRST FLOOR PLAN

1/16"=1'-0"



DATE	APPR
DESCRIPTION	SYN
2411 Dulles Corner Park Suite 500 Herndon, VA 20177	
APPROVED	ACTIVITY
SATISFACTORY TO DATE	06/02/2016
DES. PTJ   DRW. IJK   CHK. BDC	<<PM/DM>>
BRANCH MANAGER	MHP
CHIEF ENG/ARCH	<<XXX>>
NAVFAC	NORFOLK, VA
NAVAL FACILITIES ENGINEERING COMMAND	DFSP
<b>HVAC AND DDC          FACILITY OPTIMIZATION          BUILDING O-26          FIRST FLOOR PLAN</b>	
SCALE:	AS NOTED
EPROJCT NO.:	1333285
CONSTR. CONTR. NO.:	N62583-11-D-0533
NAVFAC DRAWING NO.:	12724415
SHEET	47 OF 119
<b>M-101</b>	
DRAWING REVISION: 10 MAY 2014	

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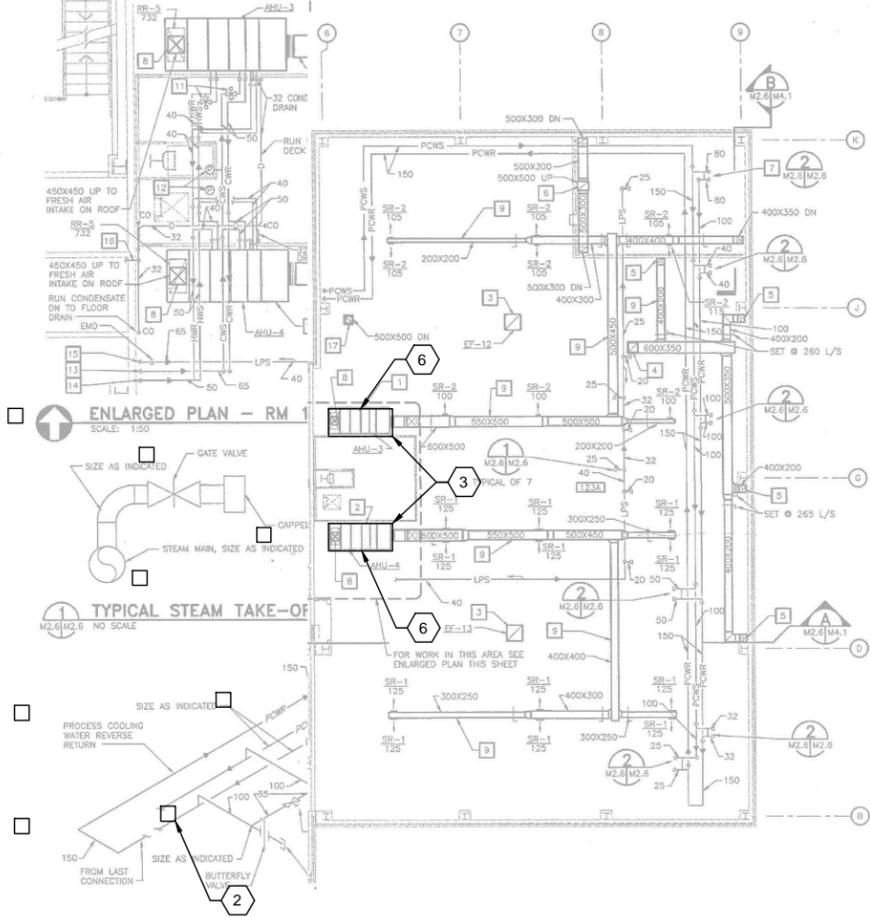
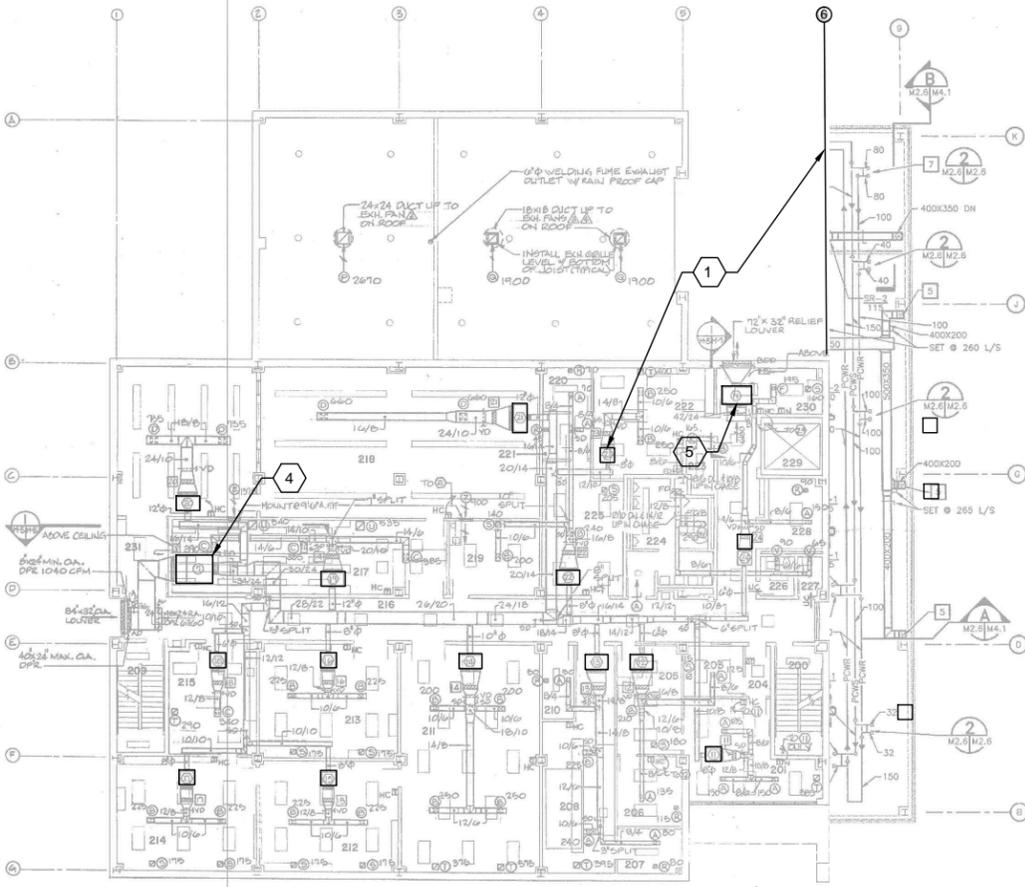
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**SECOND FLOOR PLAN**  
1/16"=1'-0"



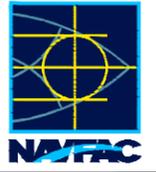
**GENERAL NOTES**

1. THIS PROJECT INCLUDES REPLACING THE EXISTING DDC SYSTEM THROUGHOUT THE FACILITY. UPGRADE CONSISTS OF REPLACING OR ADDING CONTROLS, VALVES AS NECESSARY, ACTUATORS, AND SENSORS FOR ALL EQUIPMENT PER THE DDC POINTS LIST INCLUDED IN PART 6 OF THIS RFP. WORK ALSO INCLUDES IMPLEMENTATION OF ECM(S) WITHIN THE FACILITY.
2. PROVIDE EQUIPMENT AND CONTROL COMPONENTS FOR A COMPLETE AND FUNCTIONAL SYSTEM.
3. RECORD DRAWINGS OF THE MECHANICAL SYSTEMS, CURRENT POINTS LIST AND SEQUENCES, AND DDC CONNECTED COMPONENTS ARE INCLUDED FOR REFERENCE ONLY TO REPRESENT CURRENTLY INSTALLED CONTROL EQUIPMENT.
4. THESE CONCEPT DRAWINGS ARE INCLUDED TO DELINEATE THE EXTENT OF THE WORK AREA AND ARE NOT INTENDED TO CONVEY DESIGN DETAILS FOR THE DDC SYSTEM. DESIGN DETAILS ARE LOCATED THROUGHOUT THIS RFP.
5. APPROXIMATE LOCATIONS OF EQUIPMENT ARE INDICATED ON CONCEPT DRAWINGS. APPLICABLE NOTES ARE IDENTIFIED BY HEXAGONAL FLAGS.
6. EXACT LOCATIONS FOR EXISTING EQUIPMENT, SUPPORT INFRASTRUCTURE, AND AVAILABLE DDC PANELS ARE NOT KNOWN. CONTRACTOR SHALL FIELD-LOCATE EXISTING EQUIPMENT AND MODIFY THE BUILDING SYSTEMS AS NECESSARY FOR UPGRADE OF THE DDC SYSTEM AND ECM IMPLEMENTATION.
7. PHYSICAL LAYOUT OF MECHANICAL ROOMS MAY DIFFER FROM RECORD DRAWING PLANS. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF CENTRAL PLANT EQUIPMENT, DUCTWORK, AND PIPING.
8. TYPICAL MECHANICAL EQUIPMENT IS CALLED OUT ON THESE CONCEPT DRAWINGS TO REPRESENT GENERAL CONFIGURATION AND LOCATIONS OF ITEMS. ALL EQUIPMENT TO BE CONTROLLED IS NOT HIGHLIGHTED. FIELD VERIFY LOCATIONS OF MINOR ITEMS FOR CONTROL.
9. ECM WORK INCLUDES TEST AND BALANCE OF THE COMPLETE HVAC SYSTEM FOR BOTH THE ORIGINAL AND 1998 BUILDING ADDITION. REFER TO RECORD DRAWINGS FOR ITEMS OF EQUIPMENT FOR TAB WORK.

**SHEET KEYNOTES**

- 1 TYPICAL ORIGINAL CONSTRUCTION TERMINAL AIR BLENDER WEST OF THIS COLUMN LINE.
- TYPICAL FAN POWERED VAV BOX IN 1998 BUILDING ADDITION.
- AHU MOUNTED ON MEZZANINE FOR CONDITIONING HIGH-BAY AREA.
- CENTRAL AHU FOR SECOND FLOOR OF ORIGINAL BUILDING. LOCATED E CEILING.
- RELIEF AHU LOCATED ABOVE CEILING.
- CONSIDER ZONING AND EQUIPMENT CONFIGURATION FOR DESIGN AND INSTALLATION OF CO2 SENSORS. MODIFY EXISTING AHU-3 AND AHU-4 CONSTANT VOLUME MEASURED OUTDOOR AIR CONTROL ALGORITHMS FOR DEMAND CONTROLLED VENTILATION FOR ECM.

REV	DESCRIPTION	DATE	APPR



**ch2m.**  
2411 Dulles Corner Park  
Suite 500  
Herndon, VA 20177

APPROVED

FOR COMMANDER NAFAC
ACTIVITY
SATISFACTORY TO DATE 06/02/2016
DES PTJ   DRW IHK   CHK BDC
<<PM/DM>> MHP
BRANCH MANAGER
CHIEF ENG/ARCH
<<XXX>>

NAVAL FACILITIES ENGINEERING COMMAND  
NORFOLK, VA  
HVAC AND DDC  
FACILITY OPTIMIZATION  
BUILDING O-26  
SECOND FLOOR PLAN

SCALE:	AS NOTED
EPROJECT NO.:	1333285
CONSTR. CONTR. NO.	N62583-11-D-0533
NAFAC DRAWING NO.	12724416
SHEET	48 OF 119

**M-102**  
DRAWING REVISION: 10 MAY 2014

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### GENERAL NOTES

- THIS PROJECT INCLUDES REPLACING THE EXISTING DDC SYSTEM THROUGHOUT THE FACILITY. UPGRADE CONSISTS OF REPLACING OR ADDING CONTROLS, VALVES AS NECESSARY, ACTUATORS, AND SENSORS FOR ALL EQUIPMENT PER THE DDC POINTS LIST INCLUDED IN PART 6 OF THIS RFP. WORK ALSO INCLUDES IMPLEMENTATION OF ECM(S) WITHIN THE FACILITY.
- PROVIDE EQUIPMENT AND CONTROL COMPONENTS FOR A COMPLETE AND FUNCTIONAL SYSTEM.
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- ORIGINAL SECTION OF BUILDING HAS 8 AHU WITH INLET VANE VOLUME CONTROL. RECORD DRAWINGS INDICATE THAT ALL FAN MOTORS ARE LESS THAN 10 HP.

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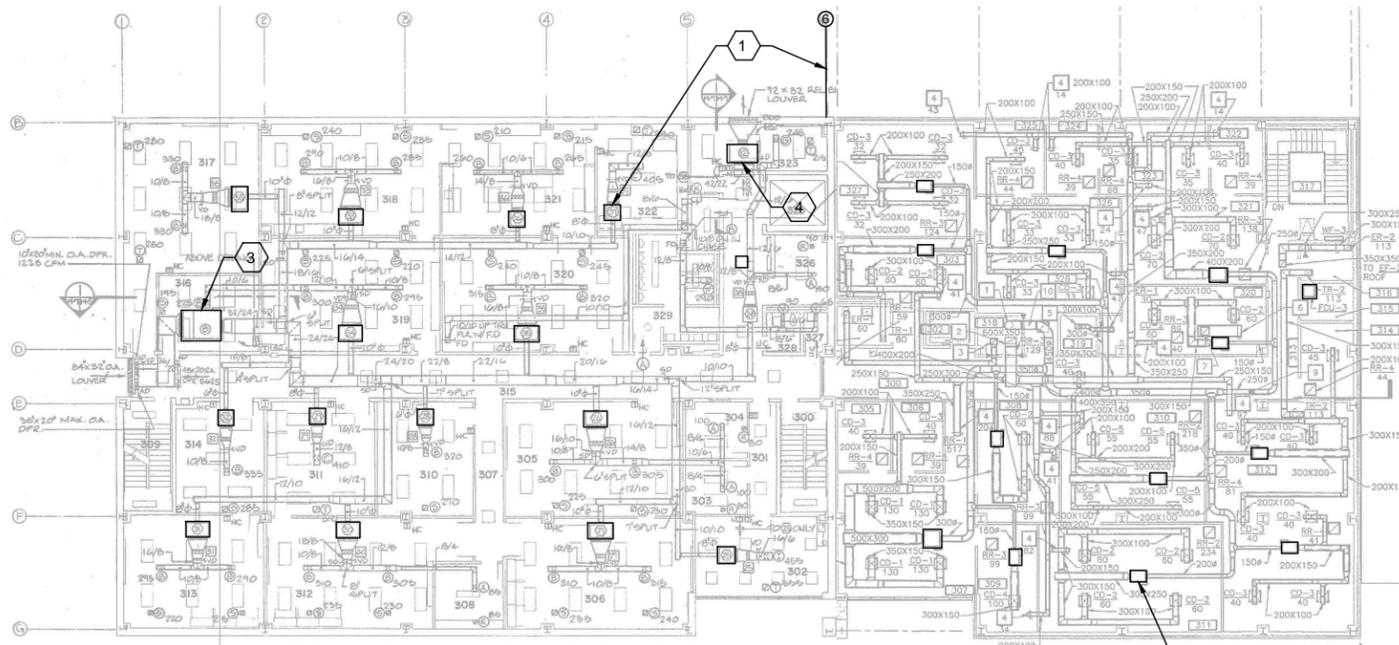
A

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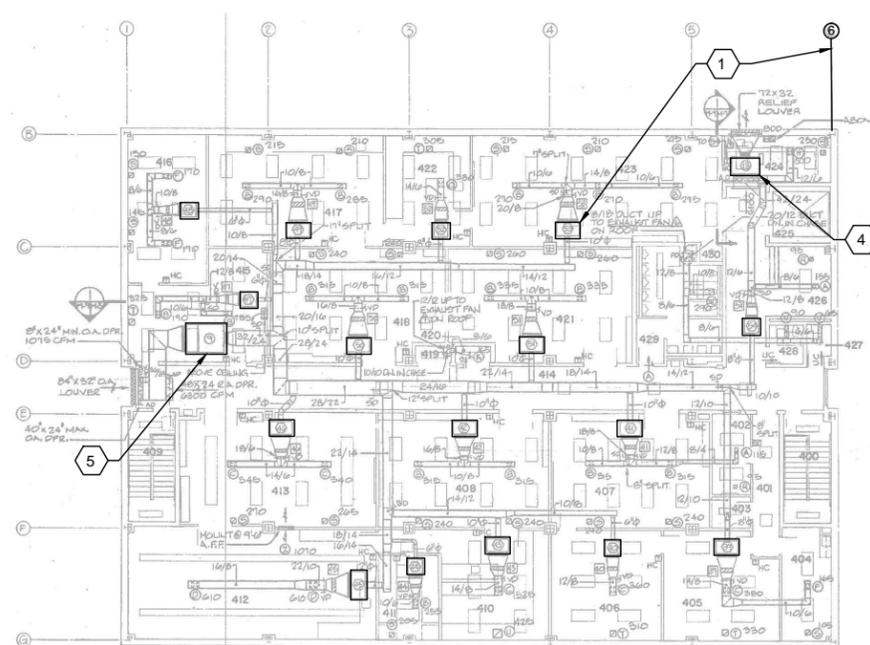
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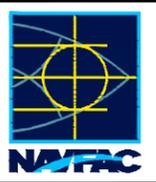
**THIRD FLOOR PLAN**  
1/16"=1'-0"



**FOURTH FLOOR PLAN**  
1/16"=1'-0"

### SHEET KEYNOTES

- TYPICAL ORIGINAL CONSTRUCTION TERMINAL AIR BLENDER WEST OF THIS COLUMN LINE.
- TYPICAL FAN POWERED VAV BOX IN 1998 BUILDING ADDITION.
- CENTRAL AHU FOR THIRD FLOOR OF ORIGINAL BUILDING. LOCATED ABOVE CEILING.
- RELIEF AHU LOCATED ABOVE CEILING.
- CENTRAL AHU FOR FOURTH FLOOR OF ORIGINAL BUILDING. LOCATED ABOVE CEILING.



**ch2m.**  
2411 Dulles Corner Park  
Suite 500  
Herndon, VA 20177

FOR COMMANDER NWFAC  
ACTIVITY  
SATISFACTORY TO DATE 06/02/2016  
DES PTJ | DRW IHK | CHK BDC  
<<PM/DM>> MHP  
BRANCH MANAGER  
CHIEF ENG/ARCH  
<<XXX>>

NAVAL FACILITIES ENGINEERING COMMAND  
NORFOLK, VA  
HVIC AND DDC  
FACILITY OPTIMIZATION  
BUILDING O-26  
THIRD AND FOURTH FLOOR PLANS

SCALE: AS NOTED  
EPROJCT NO.: 1333285  
CONSTR. CONTR. NO. N62583-11-D-0533  
NAVFAC DRAWING NO. 12724417  
SHEET 49 OF 119

**M-103**  
DRAWING REVISION: 10 MAY 2014

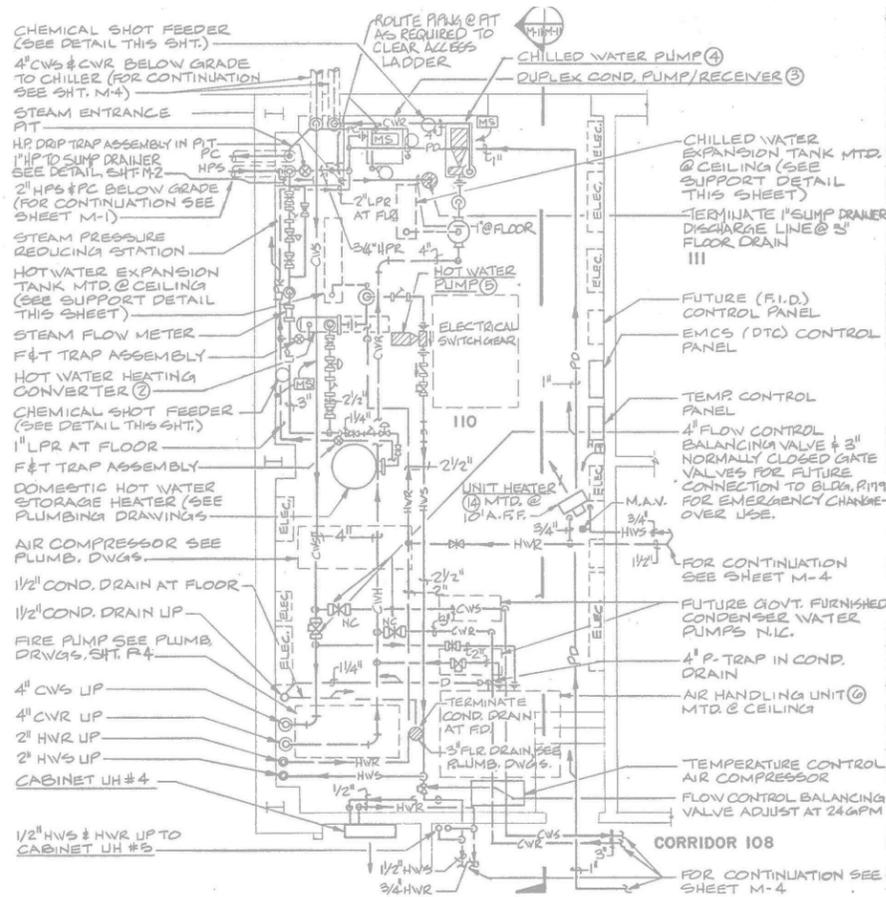
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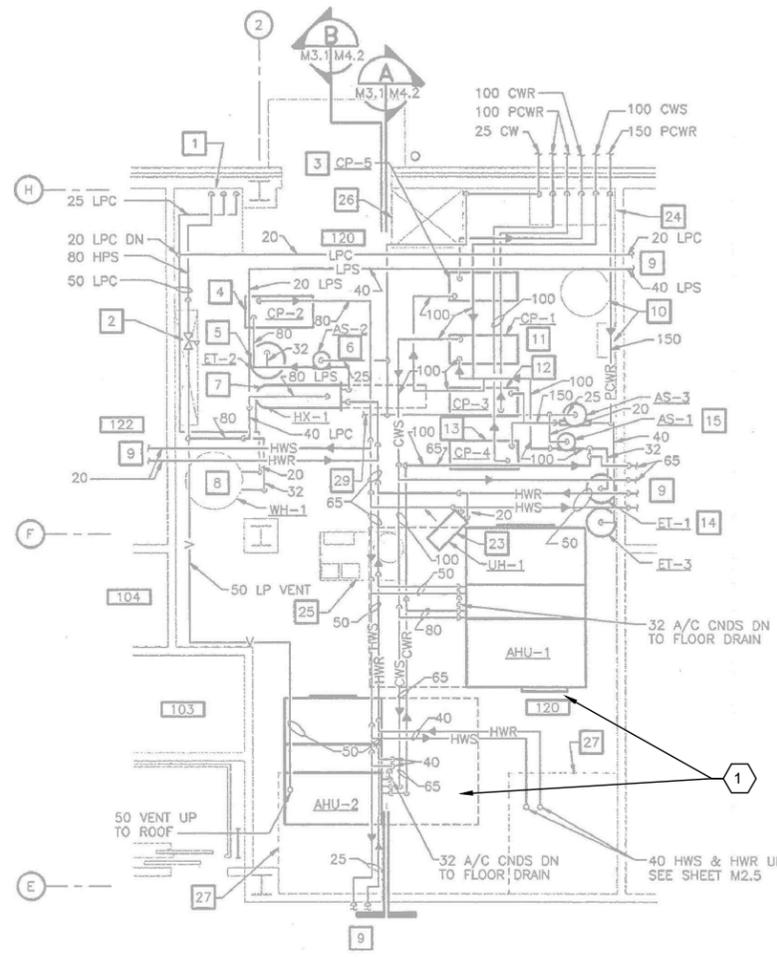
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**ENLARGED MECHANICAL EQUIPMENT ROOM PLAN**  
3/16"=1'-0"



**ENLARGED MECHANICAL ROOM 120 PLAN - PIPING**  
3/16"=1'-0"



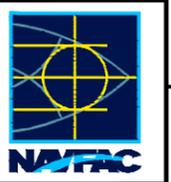
**GENERAL NOTES**

1. THIS PROJECT INCLUDES REPLACING THE EXISTING DDC SYSTEM THROUGHOUT THE FACILITY. UPGRADE CONSISTS OF REPLACING OR ADDING CONTROLS, VALVES AS NECESSARY, ACTUATORS, AND SENSORS FOR ALL EQUIPMENT PER THE DDC POINTS LIST INCLUDED IN PART 6 OF THIS RFP. WORK ALSO INCLUDES IMPLEMENTATION OF ECM(S) WITHIN THE FACILITY.
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7. PHYSICAL LAYOUT OF MECHANICAL ROOMS MAY DIFFER FROM RECORD DRAWING PLANS. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF CENTRAL PLANT EQUIPMENT, DUCTWORK, AND PIPING.
8. TYPICAL MECHANICAL EQUIPMENT IS CALLED OUT ON THESE CONCEPT DRAWINGS TO REPRESENT GENERAL CONFIGURATION AND LOCATIONS OF ITEMS. ALL EQUIPMENT TO BE CONTROLLED IS NOT HIGHLIGHTED. FIELD VERIFY LOCATIONS OF MINOR ITEMS FOR CONTROL.
9. ORIGINAL SECTION OF BUILDING HAS 8 AHU WITH INLET VANE VOLUME CONTROL. RECORD DRAWINGS INDICATE THAT ALL FAN MOTORS ARE LESS THAN 10 HP.

**SHEET KEYNOTES**

1. CONSIDER ZONING AND EQUIPMENT CONFIGURATION OR DESIGN AND INSTALLATION OF CO2 SENSORS. MODIFY EXISTING AHU-1 AND AHU-2 CONSTANT VOLUME MEASURED OUTDOOR AIR CONTROL ALGORITHMS FOR DEMAND CONTROLLED VENTILATION FOR ECM.

REV	DESCRIPTION	DATE	APPR



**ch2m.**  
2411 Dulles Corner Park  
Suite 500  
Herndon, VA 20177

APPROVED: \_\_\_\_\_  
FOR COMMANDER NAFAC  
ACTIVITY: \_\_\_\_\_

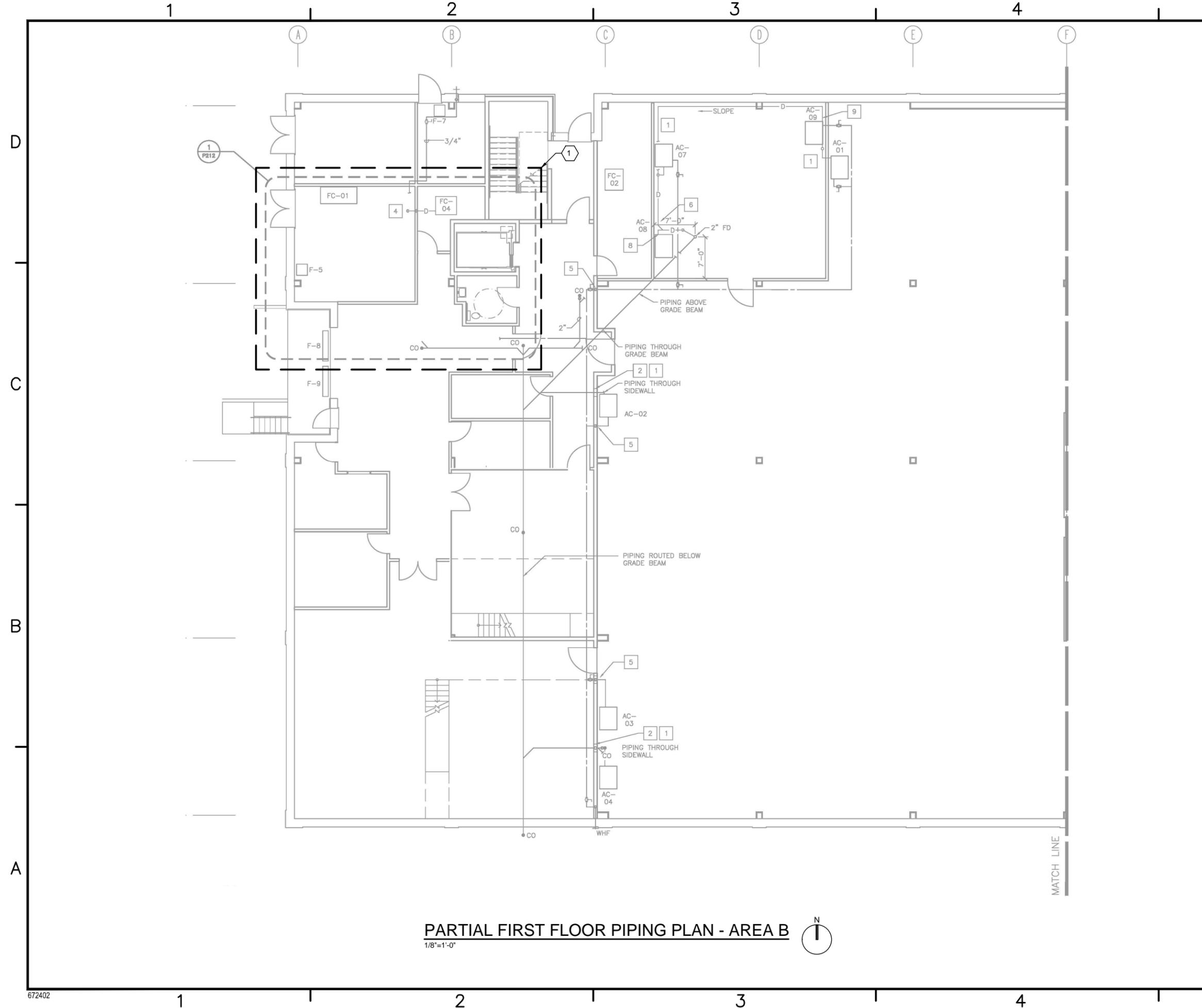
SATISFACTORY TO DATE	06/02/2016
DES. PTJ	DRW. IHK
CHK. BDC	
BRANCH MANAGER	MHP
CHIEF ENG/ARCH	<XXX>

NAVAL FACILITIES ENGINEERING COMMAND  
NORFOLK, VA  
DFSP  
**HVAC AND DDC FACILITY OPTIMIZATION**  
BUILDING O-26  
ENLARGED MECHANICAL ROOM PLANS

SCALE:	AS NOTED
EPROJCT NO.:	1333285
CONSTR. CONTR. NO.:	N62583-11-D-0533
NAVFAC DRAWING NO.:	12724418
SHEET	50 OF 119

**M-401**  
DRAWING REVISION: 10 MAY 2014

BUILDING O-27



**PARTIAL FIRST FLOOR PIPING PLAN - AREA B**  
 1/8"=1'-0"



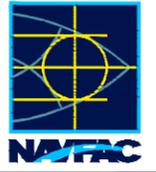
**GENERAL NOTES**

1. THIS PROJECT INCLUDES IMPLEMENTATION OF THE ECM(S) WITHIN THE FACILITY. PROVIDE EQUIPMENT AND CONTROL COMPONENTS FOR A COMPLETE AND FUNCTIONAL SYSTEM.
2. APPROXIMATE LOCATIONS OF EQUIPMENT ARE INDICATED ON CONCEPT DRAWINGS. APPLICABLE NOTES ARE IDENTIFIED BY HEXAGONAL FLAGS.
3. PHYSICAL LAYOUT OF MECHANICAL ROOMS MAY DIFFER FROM RECORD DRAWING PLANS. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF CENTRAL PLANT EQUIPMENT AND PIPING.

**SHEET KEYNOTES**

- 1 REFER TO DRAWING M-401 FOR ENLARGED MECHANICAL ROOM PLAN.

SYN	DESCRIPTION	DATE	APPR



**ch2m**  
 2411 Dulles Corner Park  
 Suite 500  
 Herndon, VA 20177

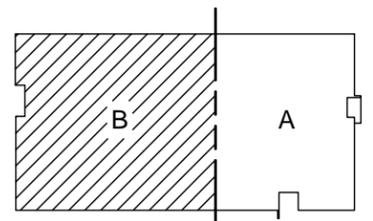
APPROVED	
FOR COMMANDER NAVFAC	
ACTIVITY	
SATISFACTORY TO DATE	06/02/2016
DES	PTJ   DRW
CHK	IHK   CHK
BDC	<<PM/DM>>
BRANCH MANAGER	MHP
CHIEF ENG/ARCH	<XXX>

NAVFAC  
 NAVFAC ENGINEERING COMMAND  
 NORFOLK, VA  
 DFSP  
**HVAC AND DDC FACILITY OPTIMIZATION**  
 BUILDING O-27  
 PARTIAL FIRST FLOOR PIPING PLAN - AREA B

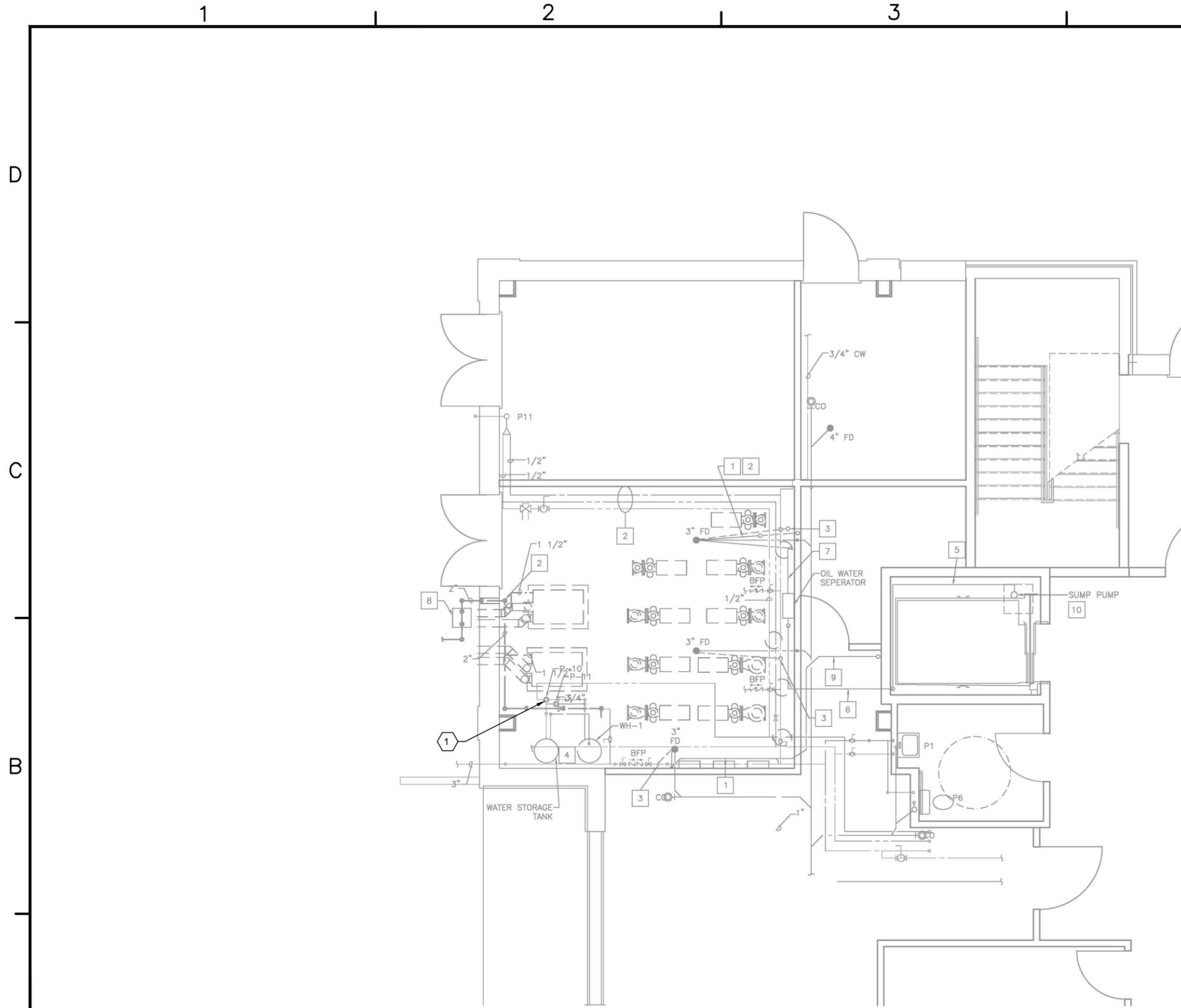
SCALE:	AS NOTED
EPROJECT NO.:	1333285
CONSTR. CONTR. NO.:	N62583-11-D-0533
NAVFAC DRAWING NO.:	12724419
SHEET	51 OF 119

**M-101**

DATEFORM REVISION: 10 MAY 2014



**KEY PLAN**



**ENLARGED FIRST FLOOR WATER PLAN - AREA B**  
 1/4"=1'-0"

**GENERAL NOTES**

1. THIS PROJECT INCLUDES IMPLEMENTATION OF THE ECM(S) WITHIN THE FACILITY. PROVIDE EQUIPMENT AND CONTROL COMPONENTS FOR A COMPLETE AND FUNCTIONAL SYSTEM.
2. APPROXIMATE LOCATIONS OF EQUIPMENT ARE INDICATED ON CONCEPT DRAWINGS. APPLICABLE NOTES ARE IDENTIFIED BY HEXAGONAL FLAGS.
3. PHYSICAL LAYOUT OF MECHANICAL ROOMS MAY DIFFER FROM RECORD DRAWING PLANS. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF CENTRAL PLANT EQUIPMENT AND PIPING.

**SHEET KEYNOTES**

- 1 PROVIDE STAND-ALONE TIMER AND AQUASTAT TO CYCLE RE-CIRCULATION PUMP P-10 DURING OCCUPIED HOURS.

SY#	DESCRIPTION	DATE	APP#



2411 Dulles Corner Park  
 Suite 500  
 Herndon, VA 20177

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE 06/02/2016

DES PTJ | DRW IHK | CHK BDC

<<PM/DM>> MHP

BRANCH MANAGER

CHIEF ENG/ARCH

<XXX>

NAVFAC  
 MID-ATLANTIC  
 DFSP

NAVAL FACILITIES ENGINEERING COMMAND

NORFOLK, VA

HVAC AND DDC

FACILITY OPTIMIZATION

BUILDING O-27

ENLARGED FIRST FLOOR WATER PLAN - AREA B

SCALE: AS NOTED

EPROJCT NO.: 1333285

CONSTR. CONTR. NO. N62583-11-D-0533

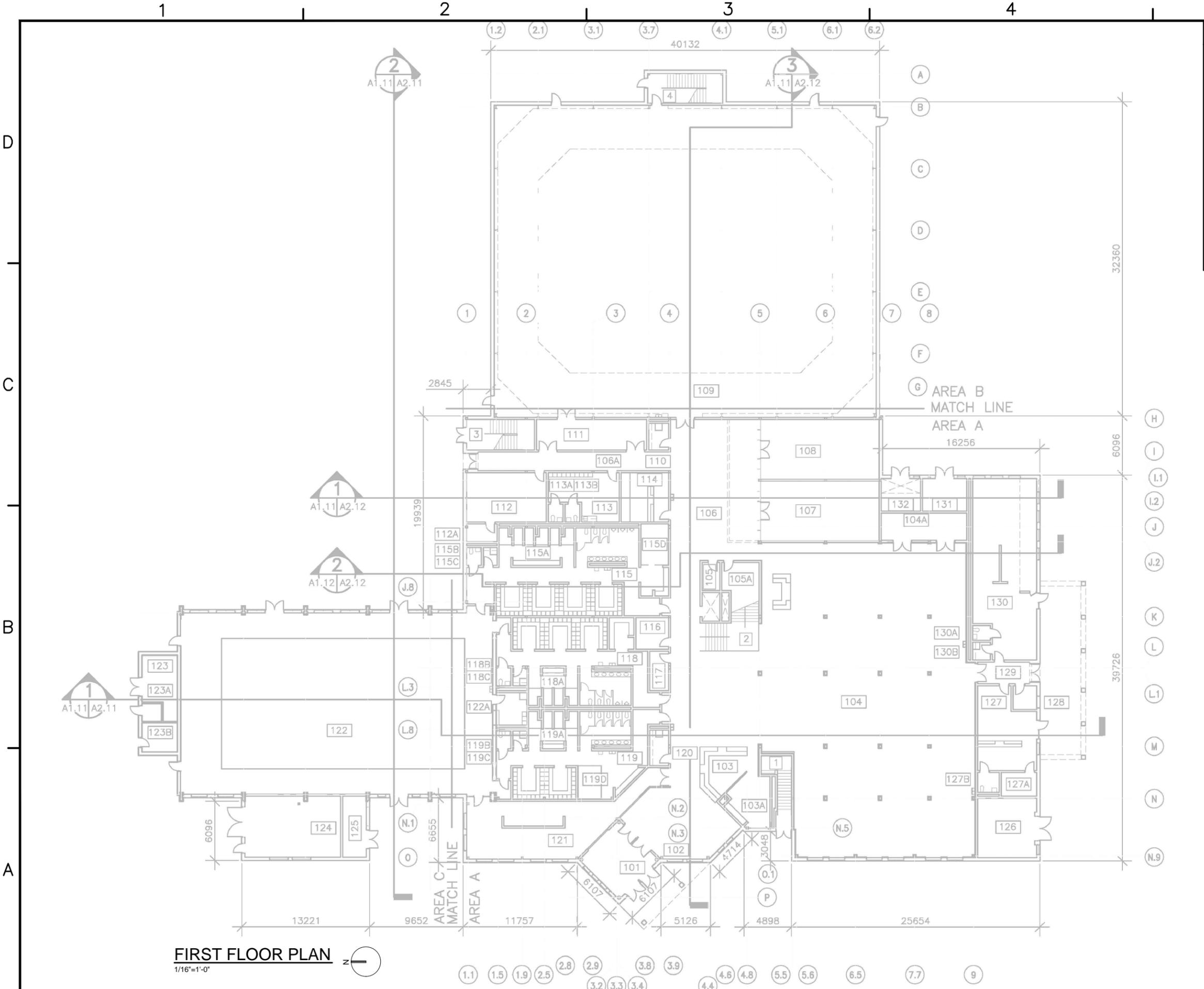
NAVFAC DRAWING NO. 12724420

SHEET 52 OF 119

M-401

DRAWING REVISION: 10 MAY 2014

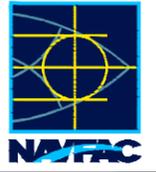
BUILDING Q-80



**FIRST FLOOR PLAN**  
1/16"=1'-0"

- GENERAL NOTES**
1. THIS PROJECT INCLUDES IMPLEMENTATION OF ECM(S) WITHIN THE FACILITY. PROVIDE EQUIPMENT AND CONTROL COMPONENTS FOR A COMPLETE AND FUNCTIONAL SYSTEM.
  2. APPROXIMATE LOCATIONS OF EQUIPMENT ARE INDICATED ON CONCEPT DRAWINGS. APPLICABLE NOTES ARE IDENTIFIED BY HEXAGONAL FLAGS.
  3. EXACT LOCATIONS FOR EXISTING EQUIPMENT AND SUPPORT INFRASTRUCTURE ARE NOT KNOWN. CONTRACTOR SHALL FIELD-LOCATE EXISTING EQUIPMENT AND MODIFY THE BUILDING SYSTEMS TO SUPPORT ECM IMPLEMENTATION.
  4. PHYSICAL LAYOUT OF MECHANICAL ROOMS MAY DIFFER FROM RECORD DRAWING PLANS. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF CENTRAL PLANT EQUIPMENT, DUCTWORK, AND PIPING.
  5. REFER TO RECORD DRAWINGS IN PART 6 FOR INFORMATION REGARDING EXISTING EQUIPMENT CONFIGURATION AND CONTROL SEQUENCES.

REV	DESCRIPTION	DATE	APP'R



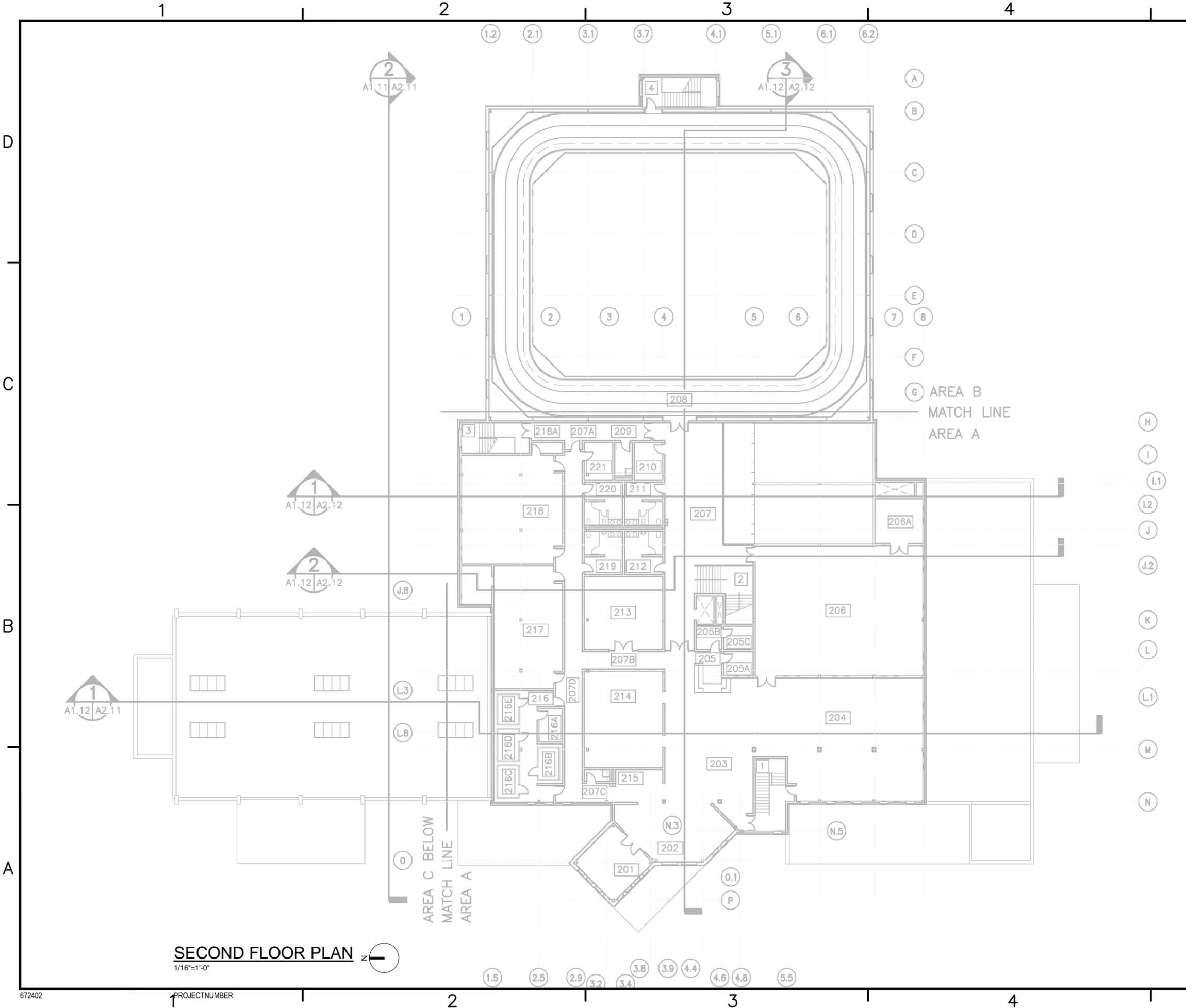
**ch2m**  
2411 Dulles Corner Park  
Suite 500  
Herndon, VA 20177

APPROVED	
FOR COMMANDER NAVFAC	
ACTIVITY	
SATISFACTORY TO DATE	06/02/2016
DES	PTJ   DRW
CHK	IHK   CHK
BDC	<<PM/DM>>
BRANCH MANAGER	MHP
CHIEF ENG/ARCH	<XXX>

NAVAL FACILITIES ENGINEERING COMMAND  
NORFOLK, VA  
DFSP  
**HVAC AND DDC FACILITY OPTIMIZATION**  
BUILDING Q-80  
FIRST FLOOR PLAN

SCALE:	AS NOTED
EPROJCT NO.:	1333285
CONSTR. CONTR. NO.:	N62583-11-D-0533
NAVFAC DRAWING NO.:	12724421
SHEET	53 OF 119

**M-101**  
DRAWING REVISION: 10 MAY 2014



- ### GENERAL NOTES
1. THIS PROJECT INCLUDES IMPLEMENTATION OF ECM(S) WITHIN THE FACILITY. PROVIDE EQUIPMENT AND CONTROL COMPONENTS FOR A COMPLETE AND FUNCTIONAL SYSTEM.
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SY#	DESCRIPTION	DATE	APPR.

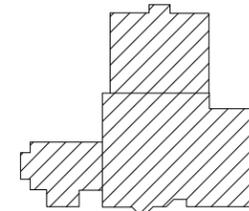


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 2411 Dulles Corner Park  
 Suite 500  
 Herndon, VA 20177

APPROVED	
FOR COMMANDER NAVFAC	
ACTIVITY	
SATISFACTORY TO DATE	06/02/2016
DES	PTJ   DRW
CHK	IHK   CHK
BDC	<<PM/DM>>
BRANCH MANAGER	MHP
CHIEF	ENG/ARCH
<XXX>	<XXX>

NAVFAC  
 NAVAL FACILITIES ENGINEERING COMMAND  
 NORFOLK, VA  
 DFSP  
 HVAC AND DDC  
 FACILITY OPTIMIZATION  
 BUILDING O-80  
 SECOND FLOOR PLAN

SCALE:	AS NOTED
EPROJECT NO.:	1333285
CONSTR. CONTR. NO.	N62583-11-D-0533
NAVFAC DRAWING NO.	12724422
SHEET	54 OF 119
<b>M-102</b>	

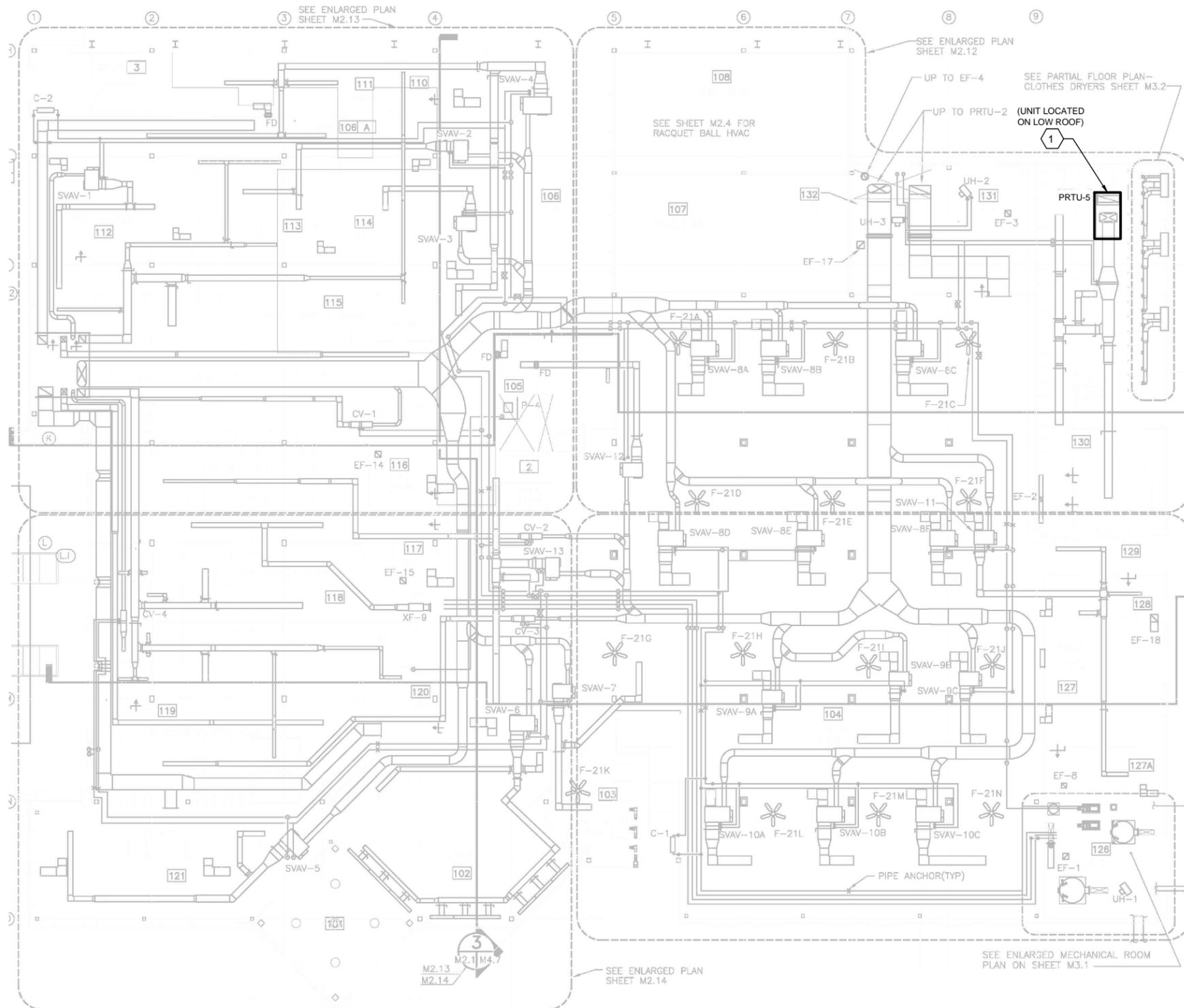


KEY PLAN

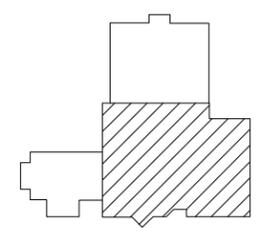
**SECOND FLOOR PLAN** z  
 1/16"=1'-0"

1 2 3 4 5

D  
C  
B  
A



**FIRST FLOOR PLAN**  
3/32"=1'-0"



KEY PLAN

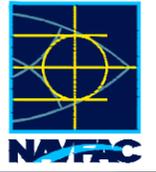
**GENERAL NOTES**

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5. REFER TO RECORD DRAWINGS IN PART 6 FOR INFORMATION REGARDING EXISTING EQUIPMENT CONFIGURATION AND CONTROL SEQUENCES.

**SHEET KEYNOTES**

1. CONSIDER ZONING AND EQUIPMENT CONFIGURATION FOR DESIGN AND INSTALLATION OF CO2 SENSORS. MODIFY EXISTING PRTU-5 OUTDOOR AIR CONTROL ALGORITHM AND ACCESSORIES (DAMPER, POWER ETC.) FOR DEMAND CONTROLLED VENTILATION. EXISTING CONSTANT VOLUME DAMPER MUST BE MODIFIED TO MODULATING TYPE.

DATE	DESCRIPTION	BY	APPR



**ch2m**  
2411 Dulles Corner Park  
Suite 500  
Herndon, VA 20177

APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE 06/02/2016
DES PTJ   DRW IHK   CHK BDC
<<PM/DM>> MHP
BRANCH MANAGER
CHIEF ENG/ARCH
<<XXX>>

NAVFAC  
MID-ATLANTIC  
DFSP  
NORFOLK, VA  
NAVAL FACILITIES ENGINEERING COMMAND  
HVAC AND DDC  
FACILITY OPTIMIZATION  
BUILDING O-80  
FIRST FLOOR PLAN

SCALE: AS NOTED
EPROJCT NO.: 1333285
CONSTR. CONTR. NO. N62583-11-D-0533
NAVFAC DRAWING NO. 12724423
SHEET 55 OF 119

**M-103**

DRAWING REVISION: 10 MAY 2014

1

2

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4

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D

C

B

A

### GENERAL NOTES

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REV	DESCRIPTION	DATE	APPR



**ch2m**  
 2411 Dulles Corner Park  
 Suite 500  
 Herndon, VA 20177

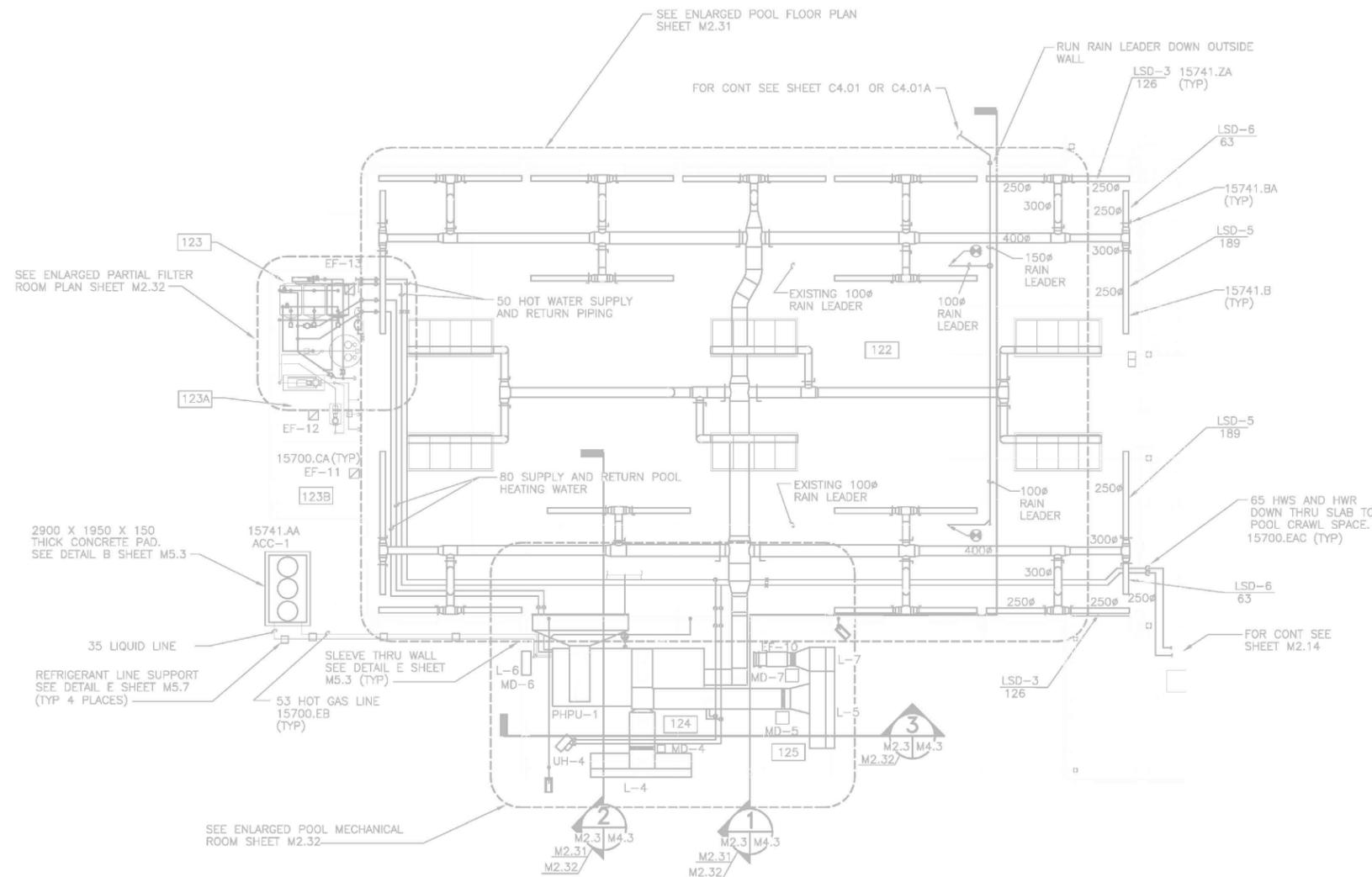
APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE 06/02/2016
DES PTJ   DRW IHK   CHK BDC
<<PM/DM>> MHP
BRANCH MANAGER
CHIEF ENG/ARCH
<XXX>

NAVFAC  
 NAVAL FACILITIES ENGINEERING COMMAND  
 NORFOLK, VA  
 DFSP

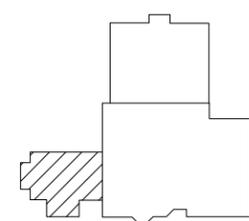
SCALE:	AS NOTED
PROJECT NO.:	1333285
CONSTR. CONTR. NO.:	N62583-11-D-0533
NAVFAC DRAWING NO.:	12724424
SHEET 56 OF 119	

M-104

DATE: 10 MAY 2014



**POOL FLOOR PLAN**  
 3/32"=1'-0"



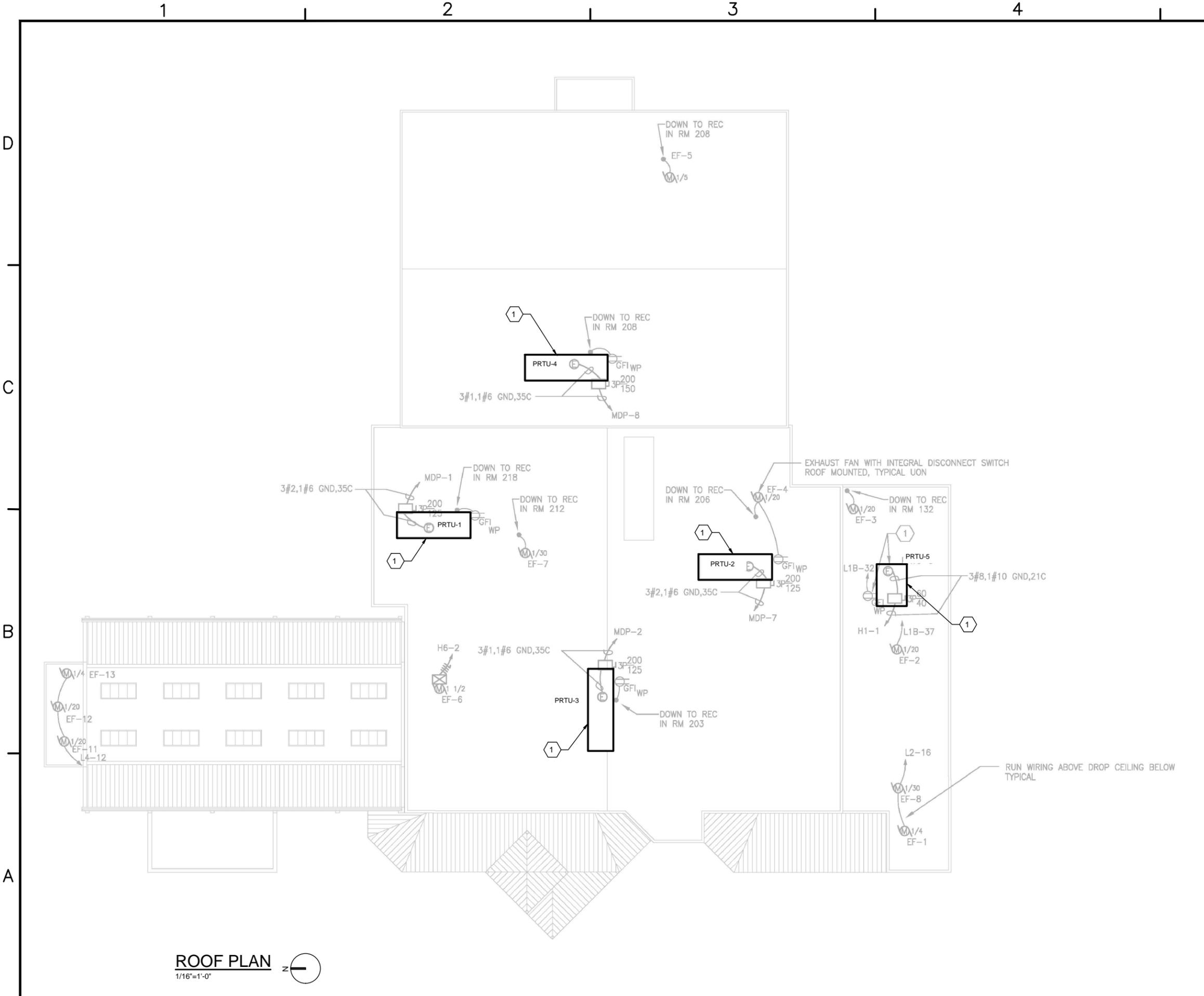
KEY PLAN

2

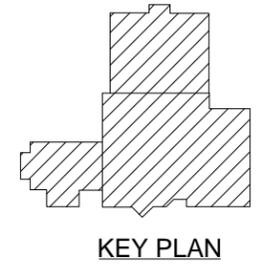
3

4

5



**ROOF PLAN**  
1/16"=1'-0"



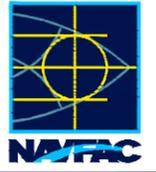
**GENERAL NOTES**

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5. REFER TO RECORD DRAWINGS IN PART 6 FOR INFORMATION REGARDING EXISTING EQUIPMENT CONFIGURATION AND CONTROL SEQUENCES.

**SHEET KEYNOTES**

1. CONSIDER ZONING AND EQUIPMENT CONFIGURATION FOR DESIGN AND INSTALLATION OF CO2 SENSORS. MODIFY EXISTING OUTSIDE AIR CONSTANT VOLUME DAMPERS TO MODULATING TYPE FOR PRTU-1, 2, 3 AND 5 (PRTU-4 IS MODULATING TYPE FOR OA DAMPER). MODIFY OUTSIDE AIR CONTROL ALGORITHM FOR ALL UNITS TO ACHIEVE DEMAND CONTROL VENTILATION.

SYMBOL	DESCRIPTION	DATE	APPROVED



**ch2m**  
2411 Dulles Corner Park  
Suite 500  
Herndon, VA 20177

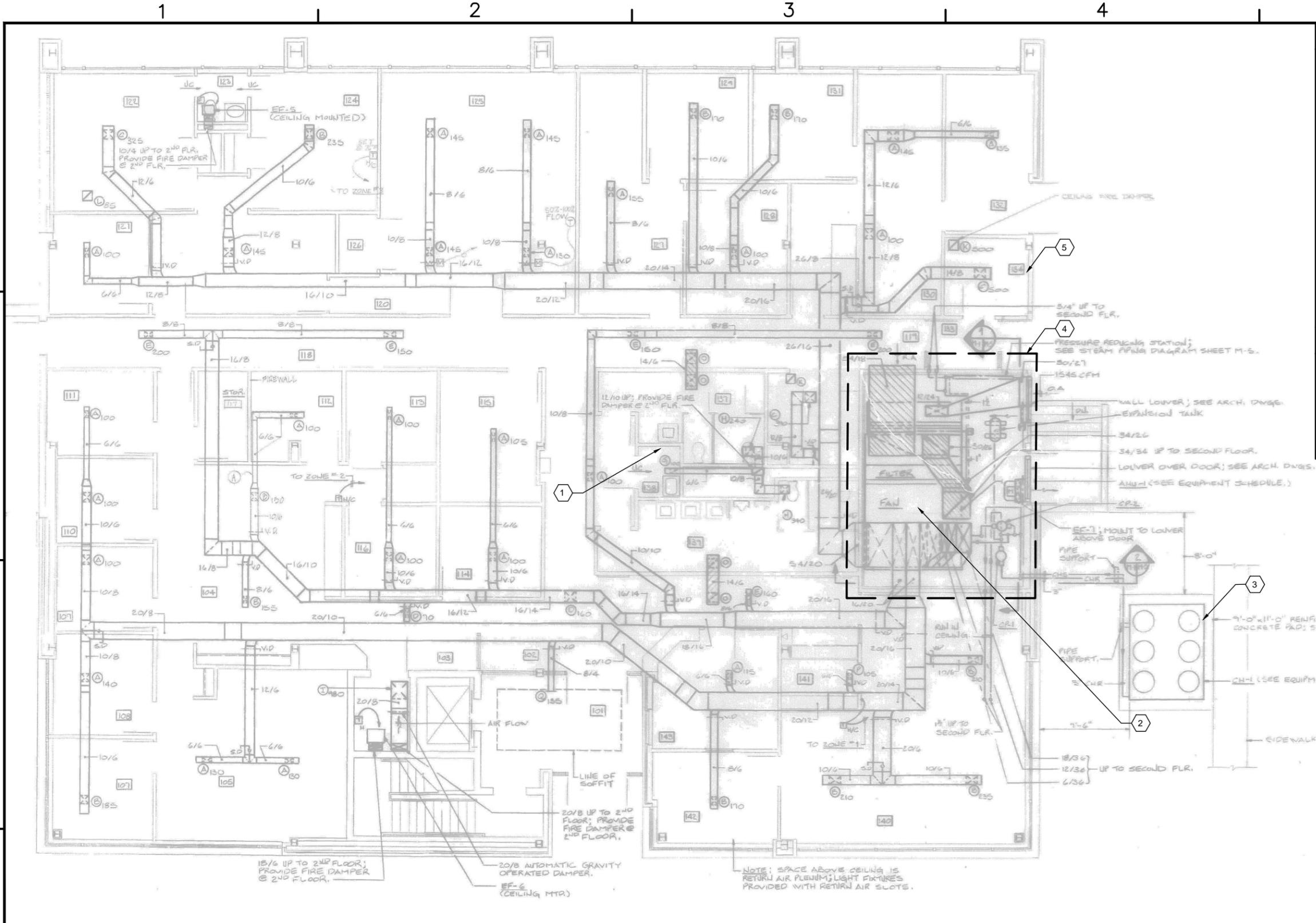
APPROVED
FOR COMMANDER NATAC
ACTIVITY
SATISFACTORY TO DATE 06/02/2016
DES. PTJ   DRAW. IHK   CHK. BDC
<<PM/DM>> MHP
BRANCH MANAGER
CHIEF ENG/ARCH
<<XXX>>

NAVAL FACILITIES ENGINEERING COMMAND  
NORFOLK, VA  
DFSP  
**HVAC AND DDC FACILITY OPTIMIZATION**  
BUILDING Q-80  
ROOF PLAN

SCALE:	AS NOTED
EPROJECT NO.:	1333285
CONSTR. CONTR. NO.:	N62583-11-D-0533
NAVFAC DRAWING NO.:	12724425
SHEET	57 OF 119
<b>M-105</b>	



BUILDING SP-12



**GENERAL NOTES**

1. THIS PROJECT INCLUDES EXPANSION OF THE EXISTING DDC CONTROL SYSTEM TO INCLUDE POINTS TABULATED IN THE POINTS LIST IN PART 6 OF THIS RFP.
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5. REFER TO RECORD DRAWINGS IN PART 6 FOR INFORMATION REGARDING EXISTING EQUIPMENT CONFIGURATION AND CONTROL SEQUENCES.

**SHEET KEYNOTES**

- 1 DOMESTIC WATER HEATER LOCATION.
- MULTIZONE AIR HANDLING UNIT
- FIELD VERIFY LOCATION OF EXTERIOR MECHANICAL EQUIPMENT.
- CENTRAL MECHANICAL EQUIPMENT LOCATED THIS ROOM. LAYOUT HAS BEEN MODIFIED FROM THIS REFERENCE DRAWING.

**FIRST FLOOR PLAN - MECHANICAL**  
3/16"=1'-0"



APPR.	DATE	DESCRIPTION	REV.



**ch2m**  
2411 Dulles Corner Park  
Suite 500  
Herndon, VA 20177

APPROVED	DATE
FOR COMMANDER NAVFAC	ACTIVITY
SATISFACTORY TO DATE	06/02/2016
DES	PTJ   DRW
CHK	IHK   CHK
BDC	<<PM/DM>>
	MHP
BRANCH MANAGER	
CHIEF ENG/ARCH	<<XXX>>

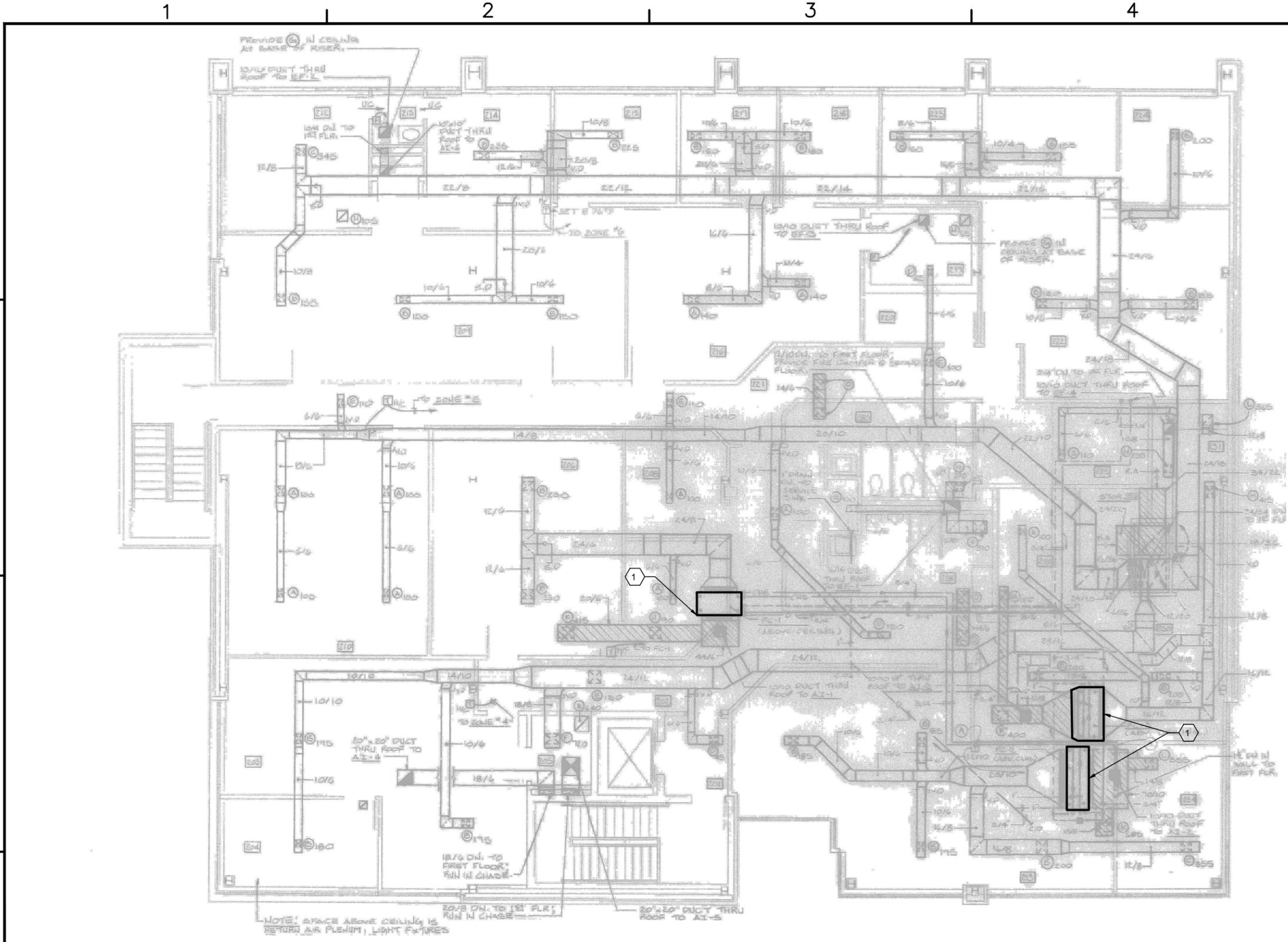
NAVAL FACILITIES ENGINEERING COMMAND  
NORFOLK, VA  
DFSP

**HVAC AND DDC FACILITY OPTIMIZATION**  
BUILDING SP-12  
FIRST FLOOR PLAN

SCALE: AS NOTED  
EPROJECT NO.: 1333285  
CONSTR. CONTR. NO. N62583-11-D-0533  
NAVFAC DRAWING NO. 12724427  
SHEET 59 OF 119

**M-101**

DATEFORM REVISION: 10 MAY 2014



**SECOND FLOOR PLAN - MECHANICAL**  
3/16"=1'-0"



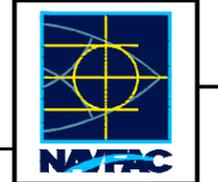
**GENERAL NOTES**

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2. APPROXIMATE LOCATIONS OF EQUIPMENT ARE INDICATED ON CONCEPT DRAWINGS. APPLICABLE NOTES ARE IDENTIFIED BY HEXAGONAL FLAGS.
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**SHEET KEYNOTES**

- 1 FAN COIL LOCATION.

SYMBOL	DESCRIPTION	DATE	APPR.



ch2m  
2411 Dulles Corner Park  
Suite 500  
Herndon, VA 20177

APPROVED  
FOR COMMANDER NATAC  
ACTIVITY

SATISFACTORY TO DATE	06/02/2016
DES	PTJ   DRW   IHK   CHK   BDC
<<PM/DM>>	MHP
BRANCH MANAGER	
CHIEF ENG/ARCH	
<<XXX>>	

NAVAL FACILITIES ENGINEERING COMMAND  
NORFOLK, VA  
DFSP  
**HVAC AND DDC FACILITY OPTIMIZATION**  
BUILDING SP-12  
SECOND FLOOR PLAN

SCALE:	AS NOTED
EPROJECT NO.:	1333285
CONSTR. CONTR. NO.	N62583-11-D-0533
NAVFAC DRAWING NO.	12724428
SHEET	60 OF 119

**M-102**  
DRAWING REVISION: 10 MAY 2014

BUILDING SP-108

1

2

3

4

5

D

C

B

A

D

C

B

A

### GENERAL NOTES

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### SHEET KEYNOTES

1. VERTICAL AHU.
2. DUAL CIRCUIT CONDENSING UNIT.
3. VRF EQUIPMENT.
4. CONDENSING UNIT.
5. APPROXIMATE DOMESTIC WATER EQUIPMENT LOCATION.
6. GAS FURNACE ABOVE CEILING.



**ch2m**  
 2411 Dulles Corner Park  
 Suite 500  
 Herndon, VA 20177

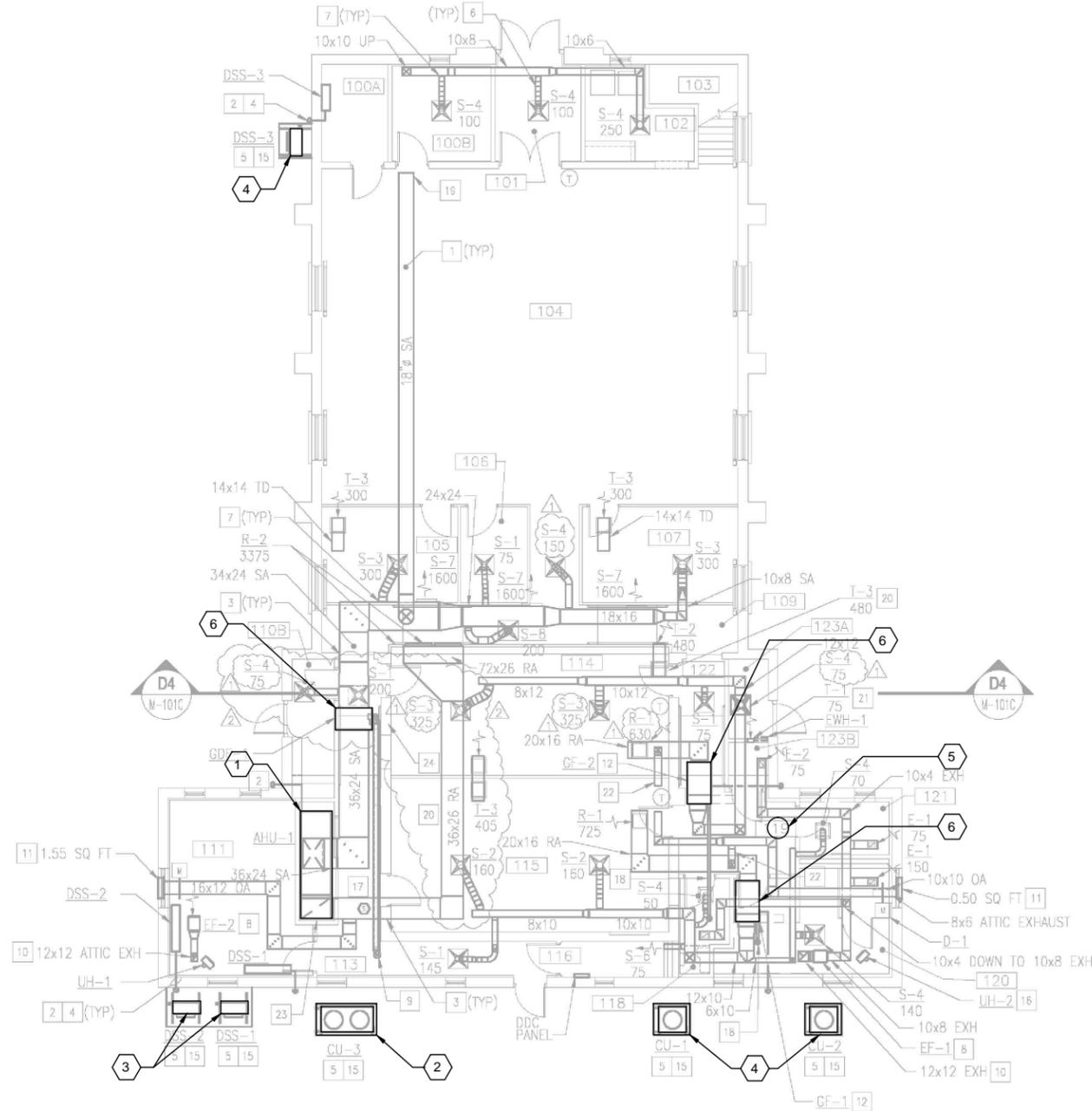
APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
SATISFACTORY TO DATE 06/02/2016
DES PTJ   DRW IHK   CHK BDC
<<PM/DM>> MHP
BRANCH MANAGER
CHIEF ENG/ARCH
<<XXX>>

NAVFAC  
 MID-ATLANTIC  
 DFSP  
 NAVAL FACILITIES ENGINEERING COMMAND  
 NORFOLK, VA  
**HVAC AND DDC FACILITY OPTIMIZATION**  
 BUILDING SP-108  
 MECHANICAL FLOOR PLAN

SCALE: AS NOTED
EPROJECT NO.: 1333285
CONSTR. CONTR. NO. N62583-11-D-0533
NAVFAC DRAWING NO. 12724429
SHEET 61 OF 119

M-101

DATEFORM REVISION: 10 MAY 2014



### MECHANICAL FLOOR PLAN

1/8"=1'-0"



1

2

3

4

5